

CTX

VL500

MODEL

SERVICE MANUAL

CONTENTS

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1.0 IMPORTANT NOTICE & INTRODUCTION

IMPORTANT NOTICE

Please read before attempting service.

1. While the monitor is in operation, do not attempt to connect or disconnect any wires.
2. Make sure the power cord is disconnected before replacing any parts in the monitor.
3. When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the monitor.
4. When servicing the H.V. area, be certain that the C.R.T. anode is safely discharged before removing the anode cap.
5. Caution must be exercised when servicing this monitor.

INTRODUCTION

Enhanced repair capabilities

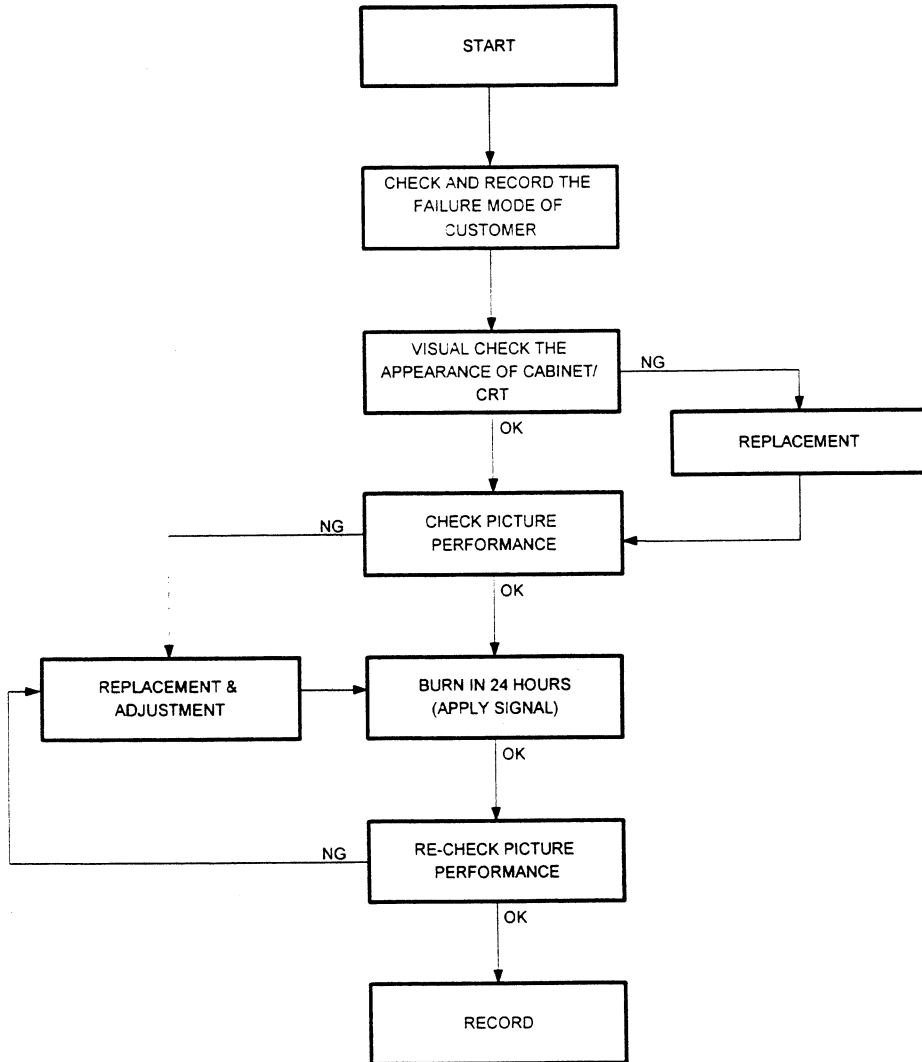
This troubleshooting guide is edited for model 1569E/SE when service is necessary there are four primary parts included in this troubleshooting guide which offer the easiest way to locate problem points and repair the machine to the best possible condition.

1. The Adjustment section offers the adjustable method, steps and all data of the factory's initial settings which can make the machine get the best performance at that time. By the way, before adjusting, the machine must be warmed up for at least 10 minutes and the CRT face must be in an east ward direction.
2. The Troubleshooting section has four main parts including power supply, power saving, CRT, deflection & video circuit. Each offers fast repair routine and the IC, transistor voltage records against all specified signal modes. These voltage readings are measured with a HP 34401A multimeter with input impedance 10M Ω (0.1V~1000V range) and waveforms shown on circuit schematics are measured by a Tektronix TDS 520 digital

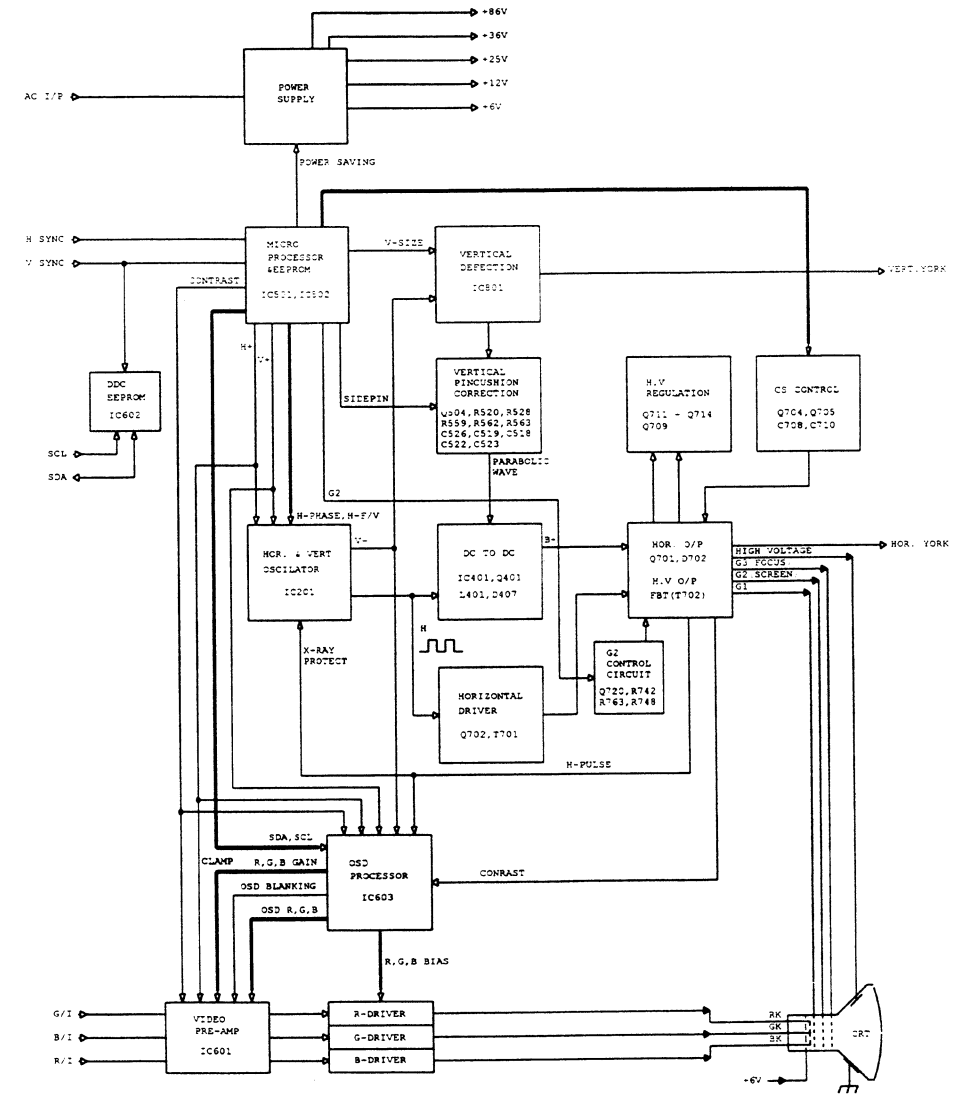
oscilloscope, the monitor receives VGA-480 full white square pattern.

3. The CRT contrast list offers repairmen / technicians the contrast data when CRT replacement is necessary from a different type of CRT.
4. The Spare parts list offers the CTX part number (P/N) which is used frequently by repairmen / technicians. For details please refer to the service guide or service manual. If there is any engineering change regarding this model, CTX will issue the updated information by a non-periodical Technical Bulletin.

2.0 GENERAL MAINTENANCE PROCEDURE



3.0 FUNCTION BLOCK DIAGRAM



4.0 DESCRIPTION OF CIRCUIT

1. Power supply circuit

The power supply is a "serial & universal AC input" switching power supply. The start up circuit will provide a DC voltage for PWM (Pulse Width Modulation) IC (IC101) when power on. When IC101 works normal start up circuit Q101 will cut off the DC voltage IC101 will auto-detect output voltage of V1 from pin2 and correct the duty cycle of pin6 output pulse to compensate the variation of output voltage.

The output of IC101 connected to power mosfet to drive the power transformer T101. When power mosfet is on, the energy stored in the primary winding of T101. Once mosfet is off, the energy transfer to the secondary and charges the output capacitor to get the stable DC voltage.

2. Oscillation circuit

Form Pin1~Pin13 of IC201 are for horizontal oscillation and Pin15~Pin19 are for vertical oscillation. The Pin2 is H-sync input, through Pin2 & 3 are for phase control, and then output to A.F.C (Auto Frequency Control). The H-phase from horizontal output circuit is sent to Pin4 for saw tooth generator. The Pin7 is A.F.C output connected to O.S.C control circuit to make the output frequency stable. The Pin12 is square wave output and connected horizontal output stage & H.V output stage Pin13 is X-RAY protect input. When H.V output circuit is abnormal (H.V too high), the X-RAY protect circuit will shut off the horizontal output, H.V. also will be shut down.

3. Horizontal output circuit

The H.V adjustment circuit consist of C703, Q709 and H.V regulation (Q711, Q712, Q713, Q714, IC701) which control the H.V output level. The duty cycle of Q709 gate directly control output voltage of C703. The C703 is a supply capacitor which supply the energy to primary winding of FBT and Q701 switch repeatedly to transfer the energy to FBT secondary winding.

4. Micon circuit

The IC501 (CPU) will detect polarity and frequency of input H.V Sync. The CPU will determine the mode of input timing (preset or users mode) and load data from IC502 (E²PROM). The output of IC501 were connected the other function (ie. H-SIZE, V-SIZE, H-PHASE.....) Also, the user can adjust picture from keyboard and the data will be saved into IC502 automatically. For the O.S.D mode, when O.S.D manual is active CPU willinfrom the OSD IC to send O.S.D BLK signal to blank the video signal from VGA card and the IC603 (O.S.D IC) will send O.S.D R-G-B video signal the consist the O.S.D manual.

IC501	Function control
Pin1	H-phase
Pin2	G2
Pin3	Contrast
Pin17~19	H-linearity
Pin20,21	Power saving
Pin22	Degauss
Pin23	Mute
Pin32,33	H & V Sync output
Pin35	Parallel
Pin36	Keystone
Pin37	Side-pin
Pin38	V-position
Pin39,40	H & V Sync input

5. DC-DC convertor circuit

Due to output DC voltage is higher than input DC voltage we call the circuit step-up DC-DC regulator. The PWM control IC3843 is kernel of the circuit. The 3843 will detect the output of H-O/P and then change the duty of Pin6. When Q401 is on, the energy stored in the secondary of power transformer. The energy will be released and to get the B+ when Q401 turn off. So, the input duty cycle of Q401 gate is higher, the output B+ is higher.

6. Vertical output circuit

The vertical pulse from oscillation IC201

(LA7851) is sent to Pin2 of vertical IC (LA7838). The amplifier output Pin12 drives the vertical deflection will directly. Voltage setting on Pin4 determines the peak level of the saw-tooth ramp, thus can be used as vertical height control. The DC feedback is sent to Pin7 of vertical IC (LA7838) adjusting VR801 can achieve best linearity.

7. Video output circuit

Video circuit consists of video preamplifier IC601 (M52737SP) and output cascode amplifier with RLC peripherals. IC601 is a Video processing IC equipped with three DC amplifiers to pre-amplify R.G.B signals form 0.6V to 3V. The voltage gain of these amplifiers are call DC controlled from Micro processor. The R.G.B GAIN & BIAS control signal are from DACs of OSD IC(STV9422). So simple voltage drive with resistors and timmers can be used to adjust the voltage GAIN and BIAS of each RGB signal's amplification and thus achieve a well balanced white picture.

The OSD IC is to control picture of OSD window. The video output stage contains three identical cascode amplifiers to amplify the video signal from IC601 to capable of driving CRT.

5.0 TIMING MODE (CTX Presetting Timing)

NAME	VGA-400		VGA-480		640X480-85		640X480-120	
PIXEL RATE	28.322 MHZ		25.2 MHZ		36.000 MHZ		54.890 MHZ	
Fh	31.469 KHZ		31.5 KHZ		43.269 KHZ		63.230 KHZ	
Fv	70.087 HZ		60 HZ		85.008 HZ		119.868 HZ	
INTERLACE MODE	NO		NO		NO		NO	
VIDEO	ANALOG-COLOR		ANALOG-COLOR		ANALOG-COLOR		ANALOG-COLOR	
XS SYNC ON GREEN	NO		NO		NO		NO	
VIDEO LEVEL	700 mV		700 mV		700 mV		700 mV	
WHITE LEVEL	700 mV		700 mV		700 mV		700 mV	
BLANK LEVEL	O IRE		O IRE		O IRE		O IRE	
16 BIT HEX DATA	0000		0000		0000		0000	
UNIT OF DATA	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms
H TOTAL	900	31.777 us	800	31.746 us	832	23.111 us	864	15.741 us
H DISPLAY	720	25.422 us	641	25.437 us	640	17.778 us	640	11.660 us
H B-PORCH	54	1.907 us	48	1.905 us	112	3.111 us	95	3.731 us
H S WIDTH	108	3.813 us	96	3.810 us	48	1.333 us	96	1.749 us
H BORDER	0	0.000 us	0	0.000 us	0	0.000 us	0	0.000 us
H SIZE	4.000 mm		4.000 mm		4.000 mm		4.000 mm	
V TOTAL	449	14.268 ms	525	16.667 ms	509	11.764 ms	530	8.343 ms
V DISPLAY	400	12.711 ms	480	15.238 ms	480	11.093 ms	480	7.555 ms
V B-PORCH	35	1.112 ms	33	1.048 ms	25	0.578 ms	36	0.567 ms
V S WIDTH	2	0.064 ms	2	0.063 ms	3	0.069 ms	6	0.094 ms
V BORDER	0	0.000 ms	0	0.000 ms	0	0.000 ms	0	0.000 ms
V SIZE	3.000 mm		3.000 mm		3.000 mm		3.000 mm	
* H S OUTPUT	ON (-)		ON (-)		ON (-)		ON (-)	
V S OUTPUT	ON (+)		ON (-)		ON (-)		ON (-)	
X S OUTPUT	ON (-)		ON (-)		ON (-)		ON (-)	
X S SELETE	H		H		H		H	





NAME	800X600-85		800X600-100		1024X768-85		1280X1024-60	
PIXEL RATE	56.250 MHZ		67.397 MHZ		94.5 MHZ		108 MHZ	
Fh	53.674 KHZ		63.883 KHZ		68.677 KHZ		63.981 KHZ	
Fv	85.061 HZ		99.973 HZ		84.997 HZ		60.020 HZ	
INTERLACE MODE	NO		NO		NO		NO	
VIDEO	ANALOG-COLOR		ANALOG-COLOR		ANALOG-COLOR		ANALOG-COLOR	
XS SYNC ON GREEN	NO		NO		NO		NO	
VIDEO LEVEL	700 mV		700 mV		700 mV		700 mV	
WHITE LEVEL	700 mV		700mV		700mV		700mV	
BLANK LEVEL	O IRE		O IRE		O IRE		O IRE	
16 BIT HEX DATA	0000		0000		0000		0000	
UNIT OF DATA	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms	PIXEL	us/ms
H TOTAL	1048	18.631 us	1055	15.654 us	1376	14.561 us	1688	15.630 us
H DISPLAY	800	14.222 us	800	11.870 us	1024	10.836 us	1280	11.852
H B-PORCH	152	2.702 us	135	2.003 us	208	2.201 us	248	2.296
H S WIDTH	64	1.138 us	80	1.187 us	96	1.016 us	112	1.037
H BORDER	0	0.000 us	0	0.000 us	0	0.000 us	0	0.000 us
H SIZE	4.000 mm		4.000 mm		4.000 mm		4.000 mm	
V TOTAL	631	11.756 ms	639	10.003 ms	808	11.765 ms	1066	16.661 ms
V DISPLAY	600	11.179 ms	600	9.392 ms	768	11.183 ms	1024	16.005 ms
V B-PORCH	27	0.503 ms	32	0.501 ms	36	0.524 ms	38	0.594 ms
V S WIDTH	3	0.056 ms	4	0.063 ms	3	0.044 ms	3	0.047 ms
V BORDER	0	0.000 ms	0	0.000 ms	0	0.000 ms	0	0.000 ms
V SIZE	3.000 mm		3.000 mm		3.000 mm		3.000 mm	
H S OUTPUT	ON (+)		ON (+)		ON (+)		ON (+)	
V S OUTPUT	ON (+)		ON (+)		ON (+)		ON (+)	
X S OUTPUT	ON (+)		ON (+)		ON (+)		ON (+)	
X S SELETE	H		H		H		H	

6.0 ADJUSTMENT

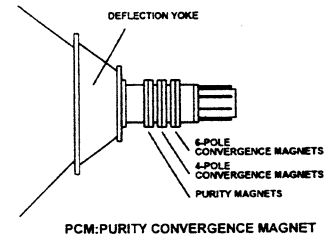
6.1 1569E/SE ADJUSTMENT

REM:PRESET MODE DATA ADJUSTMENT:

- A. Turn off it.
 B. Press the ⊖ and ⊖ at same time which on the external control panel.
 C. Turn on it.

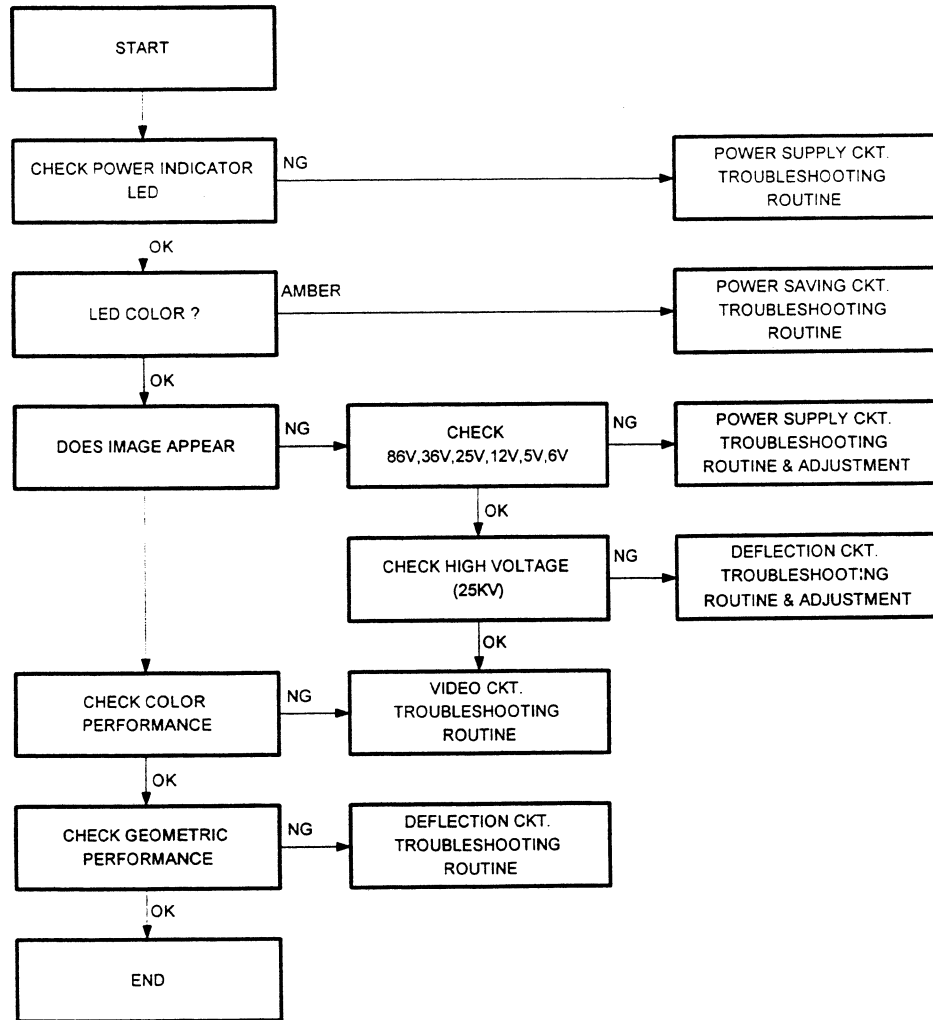
ADJUSTMENT	LOCATION	SPECIFICATION/DESCRIPTION	TIMING & PATTERN
86V	VR101	TP1=86V ± 0.5V	VGA-480, X'HATCH
12V	VR102	TP2=12V ± 0.2V	VGA-480, X'HATCH
H.V.	VR702	CRT ANODE=25KV ± 0.5KV	VGA-480, X'HATCH
H-HOLD (L)	VR202	Picture stand or flow slowly when TP4 shorted to GND.	VGA-480 (31KHz), X'HATCH
H-HOLD (H)	VR201	Ditto	VII 1024-75, X'HATCH
H-PHASE	OSD H-PHASE MANUAL	$\frac{R-L}{2} \leq 2.5\text{mm}$	All of PRESET modes, X'HATCH
V-CENTER	OSD V-CENTER MANUAL	$\frac{U-D}{2} \leq 2.5\text{mm}$	All of PRESET modes, X'HATCH
V-LINE	VR801	$\frac{Y_{\max}-Y_{\min}}{Y_{\max}} \leq 10\%$	VESA1024, X'HATCH
H-WIDTH	VR401	H-width=260 ± 3mm with OSD H-width manual is min..	VII 1024-75, X'HATCH
	OSD. H-WIDTH MANUAL	H-WIDTH=270 ± 5mm	All of PRESET modes, X'HATCH
V-SIZE	OSD V-SIZE MANUAL	V-SIZE=202 ± 5mm	All of PRESET modes, X'HATCH
	OSD. SIDE-PIN MANUAL	≤ 1.5mm	All of PRESET modes, X'HATCH
	OSD. KEYSTONE MANUAL	≤ 3mm	All of PRESET modes, X'HATCH
	OSD. PARALLEL MANUAL	≤ 3mm	All of PRESET modes, X'HATCH
	OSD. ROTATION MANUAL	≤ 2mm	All of PRESET modes, X'HATCH
SCREEN	OSD. G2 MANUAL	Raster=1~2FL when Brightness value=100, Contrast value=100.	VGA-400, MOSAIC
FOCUS	FBT FOCUS VR	Optimum point	SVGA III (48K), "m"
WHITE BALANCE PRE-SET	OSD. COLOR MANUAL	MODE 1 9300 °K CONTRAST value=100.	
	OSD. R.G.B. GAIN/BIAS	DAC VALUE=50	
WHITE BALANCE PRE-ADJ	OSD. G2 MANUAL	RASTER Y=1 ~ 2FL	VGA-480, MOSAIC
	OSD R.G.B. BIAS	RASTER x=0.281 ± 0.01, y=0.311 ± 0.01	VGA-480, MOSAIC
	OSD. G2 MANUAL	RASTER ≤ 0.02FL, When BRIGHTNESS value=50 CONTRAST value=100	VGA-480, MOSAIC
	OSD. SUB-CONT MANUAL	MOSAIC Y=53 ± 1FL	VGA-480, MOSAIC

Remark: Before adjusting, monitor must warm up 10 minutes and CRT must be degaussed.

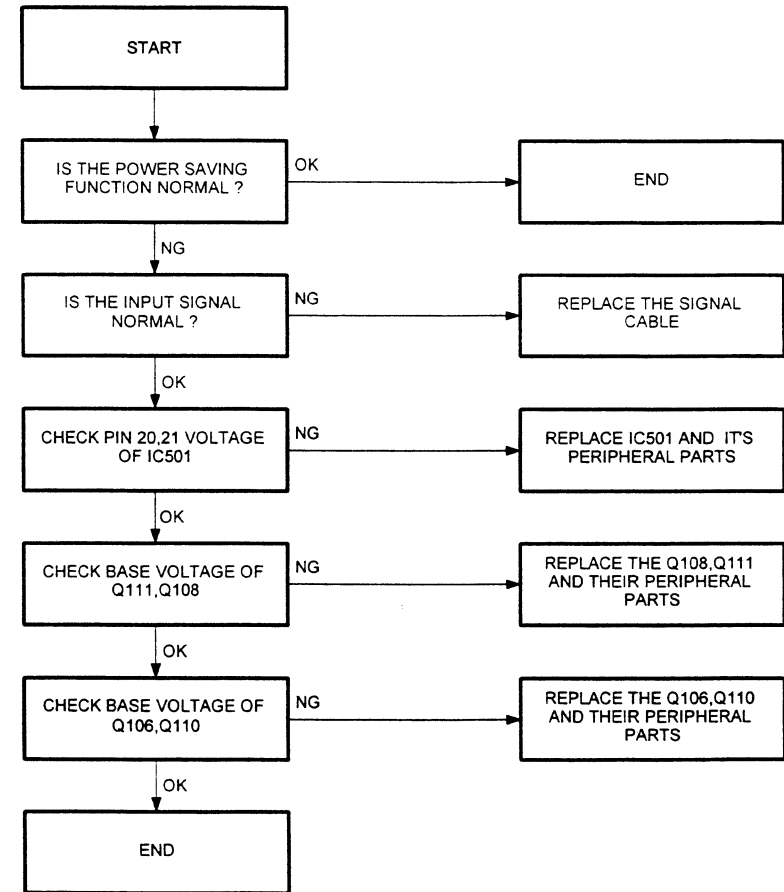
ADJUSTMENT	LOCATION	SPECIFICATION/DESCRIPTION	TIMING & PATTERN
WHITE BALANCE ADJ.	OSD. R.G.B. BIAS	x=0.281 ± 0.015 ; y=0.311 ± 0.015, When BRIGHTNESS value=50 and adjust CONTRAST to get the picture is in 2~3FL.	VGA-480, FULL WHITE
	OSC. R.G.B. BIAS	x=0.281 ± 0.02 ; y=0.311 ± 0.02 When BRIGHTNESS value=0 and CONTRAST value=100	VGA-480, FULL WHITE
	OSD. R.G.B. GAIN	x=0.281 ± 0.02 ; y=0.311 ± 0.02 When BRIGHTNESS value=50 and CONTRAST value=100	VGA-480, FULL WHITE
CONVERGENCE	4 POLE OF PCM	Vertical RED and BLUE lines are converged by varying the angle between the two tabs.	VGA-480, MAGERTA X'HATCH
	4 POLE OF PCM	Horizontal RED and BLUE lines are converged by moving the two tabs at the same time.	VGA-480, MAGENTA X'HATCH
	6 POLE OF PCM	Vertical GREEN and MAGENTA lines are converged by varying the angle between the two tabs.	VGA-480, X'HATCH
	6 POLE OF PCM	Horizontal GREEN and MAGENTA lines are converged by moving the two tabs at the same time.	VGA-480, X'HATCH
			

7.0 TROUBLESHOOTING

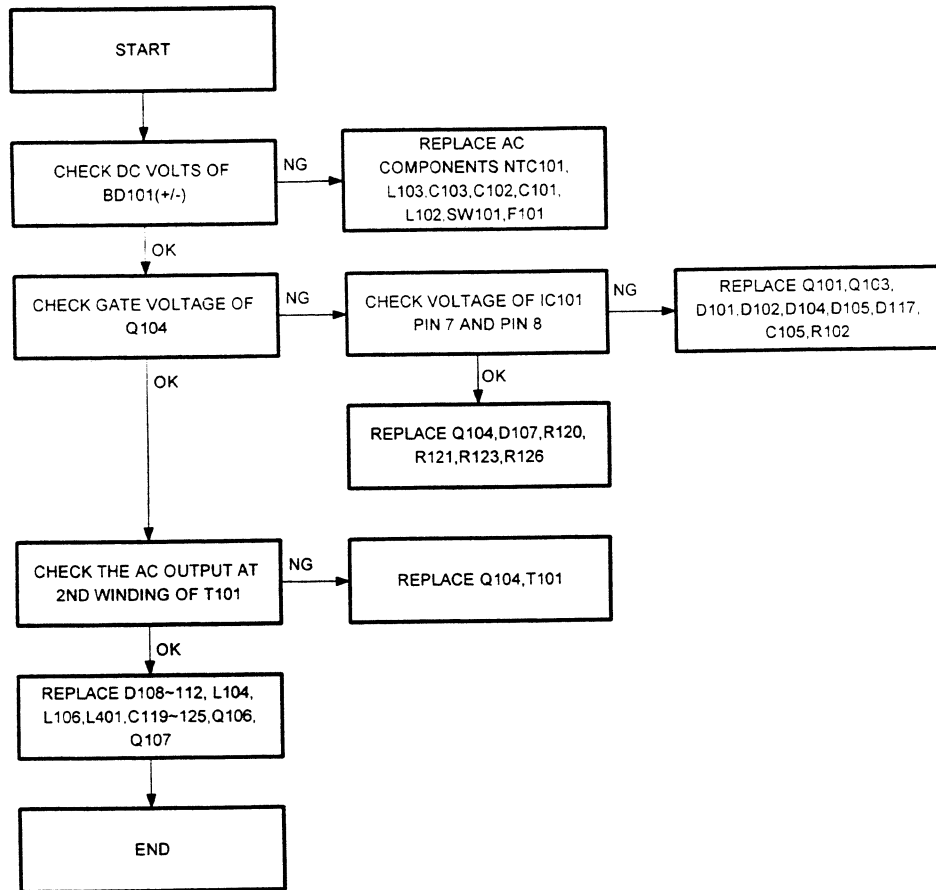
7.1 MAIN TROUBLESHOOTING ROUTINE



7.2 POWER SAVING CIRCUIT TROUBLESHOOTING ROUTINE



7.3 POWER SUPPLY CIRCUIT TROUBLESHOOTING ROUTINE



VOLTAGE MEASURED RECORD

TEST CONDITIONS: TIMING : VGA-480
PATTERN: CROSS HATCH

Unit: Volt

TR	Q106 (2SB772)			Q107 (2SD882)			Q108 (C945)			
	PIN STATUS	E	C	B	E	C	B	E	C	B
NORMAL		23.86	23.77	23.15	12.06	14.52	12.64	GND	0.05	0.66
STAND BY		23.90	2.57	23.79	1.84	12.79	2.42	GND	2378	0.02
SUSPEND		23.70	2.57	23.59	1.84	12.54	2.42	GND	23.58	0.02
OFF		1.85	2.59	25.13	1.85	14.38	2.44	GND	25.12	0.03

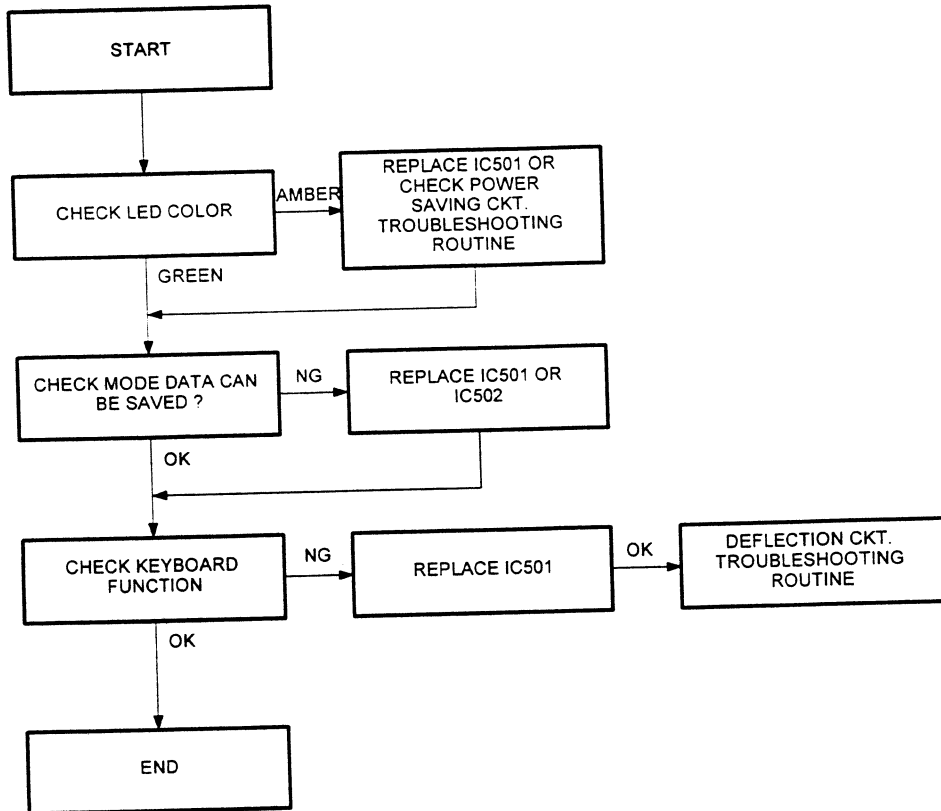
TR	Q109 (C945)			Q110 (2SB772)			Q111 (C945)			
	PIN STATUS	E	C	B	E	C	B	E	C	B
NORMAL		6.16	12.65	6.77	6.37	6.20	5.64	GND	0.06	0.66
STAND BY		1.84	2.42	1.03	3.77	3.62	3.06	GND	0.05	0.67
SUSPEND		1.84	2.42	1.03	3.82	3.67	3.10	GND	0.05	0.68
OFF		1.85	2.44	1.04	7.62	0	7.60	GND	7.61	0.03

IC	IC102 (C7805)			IC (68P61)			TR	Q102 (C945)		
	PIN STATUS	I	G	O	20	21		PIN STATUS	E	C
NORMAL		10.46	GND	4.93	4.89	4.89	NORMAL	GND	12.04	-0.01
STAND BY		9.52	GND	4.94	4.87	0.05	DEGAUSS	GND	0.16	0.84
SUSPEND		8.55	GND	4.94	4.87	0.05				
OFF		11.05	GND	4.95	0.06	0.06				

TR	Q101 (BT169D)			Q103 (2SC945)			Q104 (2SK1507)			
	PIN AC IN	K	G	A	E	C	B	G	D	S
110V		1.88	0	138.53	GND	0.00	0.73	3.00	138.76	0.09
220V		0.75	0	303.25	GND	0.00	0.72	1.12	304.85	0.04

IC	IC101 (3842)								
	PIN AC IN	1	2	3	4	5	6	7	8
110V		3.39	2.51	0.17	0.72	GND	3.41	14.46	5.02
220V		3.51	2.51	0.22	0.72	GND	1.51	14.42	5.02

7.4 MICON CIRCUIT TROUBLESHOOTING ROUTINE



TR	Q501 (733)			Q502 (A733)			Q503 (C945)			
MODE	PIN	E	C	B	E	C	B	E	C	B
VGA-480		4.92	0.01	7.08	4.92	4.89	4.21	2.35	9.92	2.97
8514NI		4.91	0.01	7.07	4.91	4.89	4.21	2.62	10.05	3.24
VESA 64K		4.91	0.01	7.07	4.91	4.89	4.21	2.42	9.99	3.04

TR	Q504 (A733)			Q505 (A733)			Q506 (C945)			
MODE	PIN	E	C	B	E	C	B	E	C	B
VGA-480		10.54	1.14	9.92	4.92	0.08	4.92	4.62	4.91	0.50
8514NI		10.66	1.11	10.04	4.92	0.13	4.92	4.60	4.91	0.42
VESA 64K		10.61	1.03	9.99	4.92	0.18	4.92	0.02	4.91	0.32

TR	Q508 (C945)			Q509 (C945)			Q510 (C945)			
MODE	PIN	E	C	B	E	C	B	E	C	B
VGA-480		4.91	12.03	4.91	4.91	10.18	4.91	4.91	7.09	4.91
8514NI		0.19	0.22	0.94	4.90	10.18	4.90	0.19	0.21	0.94
VESA 64K		0.22	0.24	0.97	0.22	0.24	0.97	0.21	0.23	0.96

TR	Q511 (C945)			Q512 (A733)			Q515 (C945)			Q516 (JC33725)			
MODE	PIN	E	C	B	E	C	B	E	C	B	E	C	B
VGA-480		0.50	4.91	0.75	3.09	0.57	2.53	10.91	12.03	11.31	0	12.00	0.57
8514NI		0.42	4.91	0.65	3.09	0.57	2.53	6.32	12.03	6.20	0	12.09	0.57
VESA 64K		0.32	4.91	0.54	3.09	0.56	2.53	2.09	12.03	1.47	0	12.13	0.57

TR	Q517 (JC33725)			Q518 (A733)			Q522 (C945)			Q523 (C945)			
MODE	PIN	E	C	B	E	C	B	E	C	B	E	C	B
VGA-480		12.23	23.74	12.00	10.91	0	11.31	0	2.38	-0.01	0	-0.01	0.64
8514NI		12.23	23.97	12.08	6.32	0	6.19	0	2.38	-0.01	0	-0.01	0.64
VESA 64K		12.23	24.04	12.13	2.09	0	1.47	0	2.38	0.23	0	0.23	0.24

7.5 VIDEO CIRCUIT TROUBLESHOOTING ROUTINE

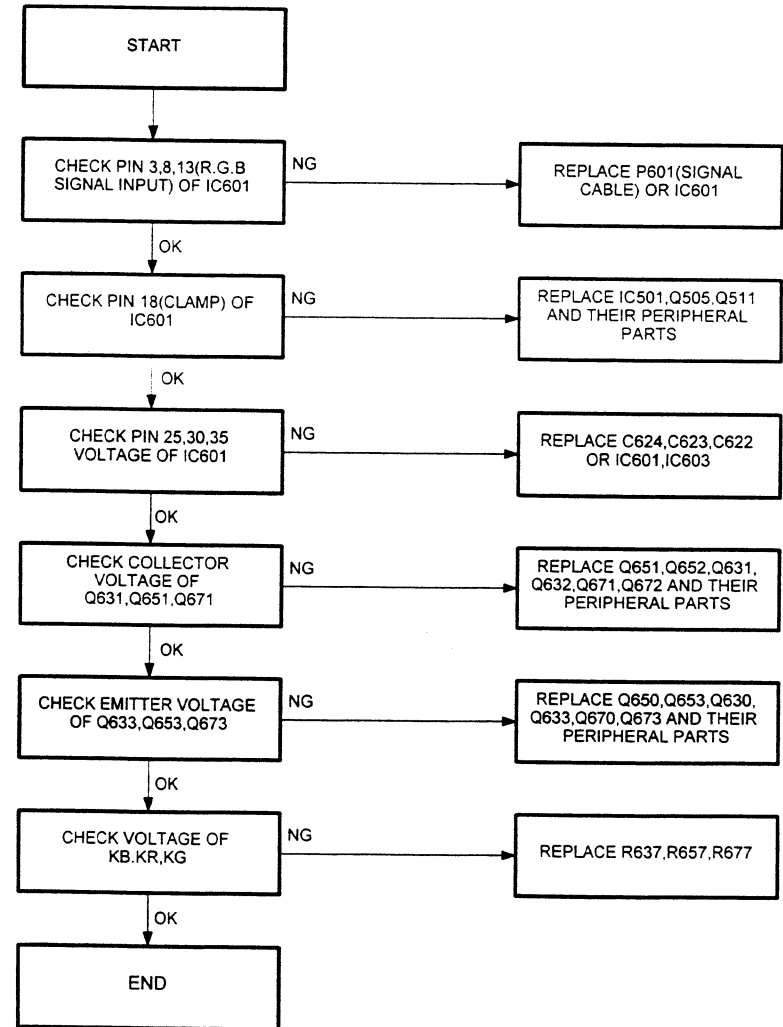
IC	IC501 (UM68P61)									
PIN	1	2	3	4	5	6	7	8	9	10
VGA-480	2.38	7.43	2.20	4.89	4.91	GND	2.66	2.51	4.92	4.92
8514NI	3.86	7.43	2.22	4.89	4.91	GND	2.66	2.51	4.91	4.91
VESA 64K	2.62	7.43	2.47	4.89	4.91	GND	2.66	2.51	4.91	4.91

IC	IC501 (UM68P61)									
PIN	11	12	13	14	15	16	17	18	19	20
VGA-480	4.91	4.91	4.91	4.87	4.91	4.91	4.91	4.91	4.91	4.89
8514NI	4.90	4.90	4.91	4.87	4.87	4.91	0.91	4.90	0.19	4.88
VESA 64K	4.90	4.90	4.87	4.87	4.90	4.91	0.21	0.22	0.22	4.88

IC	IC501 (UM68P61)									
PIN	21	22	23	24	25	26	27	28	29	30
VGA-480	4.89	0.07	0.01	0	4.90	1.70	0.03	4.91	0.02	0.47
8514NI	4.88	0.12	0.06	0	4.90	1.70	0.03	4.91	0.02	0.24
VESA 64K	4.88	0.15	0.08	0	4.90	1.70	0.03	4.91	0.02	0.35

IC	IC501 (UM68P61)									
PIN	31	32	33	34	35	36	37	38	39	40
VGA-480	3.64	0.21	0.75	11.30	2.41	1.08	0.52	1.26	3.77	4.62
8514NI	2.64	0.23	0.65	6.17	1.62	1.51	0.57	1.29	3.85	4.60
VESA 64K	2.78	0.21	0.54	1.47	2.15	1.19	0.43	1.16	0.35	0.02

IC	IC502 (24C04)							
PIN	1	2	3	4	5	6	7	8
VGA-480	4.92	0	4.92	0	4.91	4.91	0	4.92
8514NI	4.91	0	4.91	0	4.91	4.91	0	4.92
VESA 64K	4.91	0	4.91	0	4.91	4.91	0	4.92



The following voltage records was measured with full white cross-hatch pattern.

Transistor & Integration circuit

Unit: Volt

TR	Q605 (C945)			Q630,650,670 (C3953)			Q631,651,671 (C3953)		
	E	C	B	E	C	B	E	C	B
Full White	3.77	4.90	4.38	50.12	85.44	61.45	11.28	55.46	11.91
Cross-hatch	3.76	4.90	4.38	68.44	86.62	71.50	11.32	65.90	11.94

TR	Q632,652,672 (PH2369)			Q633,653,673 (A1370)			Q634,654,674 (BF423)		
	C	B	E	E	C	B	E	C	B
Full White	11.28	2.95	2.33	49.33	0	54.87	50.72	0	51.27
Cross-hatch	11.33	1.78	1.16	67.86	0	65.92	51.84	0	52.03

TR	Q635,655,675 (BF422)			Q661 (C945)			Q662 (C1906)		
	E	C	B	E	C	B	E	C	B
Full White	4.31	47.95	4.90	0	3.23	-0.11	0	0.50	0.69
Cross-hatch	4.31	48.75	4.90	0	3.22	-0.11	0	0.51	0.69

IC	IC601 (M52737)									
PIN	1	2	3	4	5	6	7	8	9	10
Full White	0.01	11.95	2.94	2.74	0.01	0	11.95	2.86	3.52	0.01
Cross-hatch	0.01	11.97	2.50	2.74	0.01	0.00	11.96	2.49	3.52	0.01

IC	IC601 (M52737)									
PIN	11	12	13	14	15	16	17	18	19	20
Full White	0	11.95	2.94	3.16	0.01	0	3.01	0.09	2.06	0.50
Cross-hatch	0	11.96	2.50	3.16	0.01	0	3.34	0.09	2.06	0.51

IC	IC601 (M52737)									
PIN	21	22	23	24	25	26	27	28	29	30
Full White	0	0	4.03	11.92	3.04	0	0	4.04	11.92	2.98
Cross-hatch	0	0	4.02	11.95	1.81	0	0	4.03	11.95	1.80

IC	IC601 (M52737)									
PIN	31	32	33	34	35	36				
Full White	0	0	4.06	11.92	2.83	1.44				
Cross-hatch	0	0	4.05	11.95	1.78	1.44				

IC	IC603 (STV9425)									
PIN	1	2	3	4	5	6	7	8	9	10
Full White	2.89	4.12	0.01	0.21	0.50	4.90	1.05	2.38	2.08	2.02
Cross-hatch	2.90	4.12	0.01	0.22	0.51	4.90	1.05	2.38	2.08	2.02

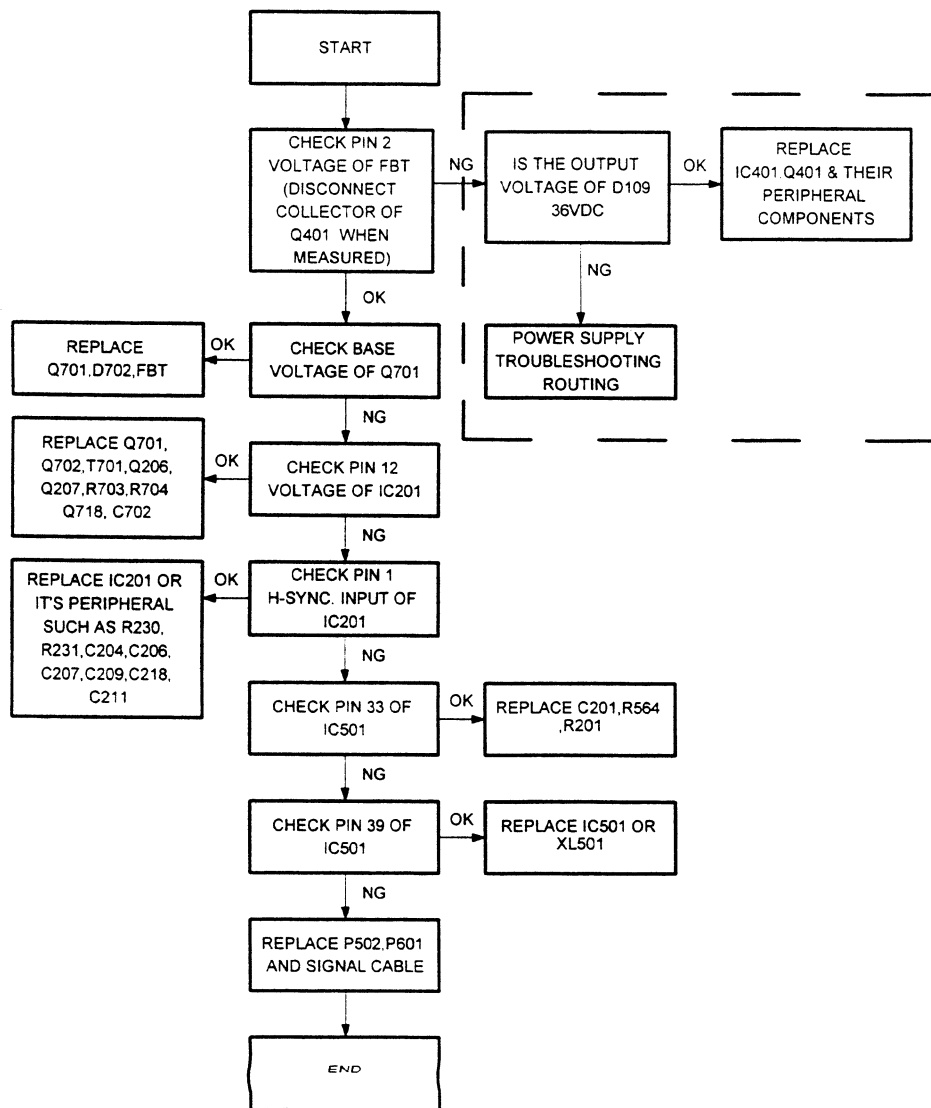
IC	IC603 (STV9425)									
PIN	11	12	13	14	15	16	17	18	19	20
Full White	2.43	3.39	4.87	2.78	4.92	4.92	4.89	0	0.01	0.01
Cross-hatch	2.43	3.39	4.88	2.78	4.92	4.92	4.89	0	0.01	0.01

IC	IC603 (STV9425)									
PIN	21	22	23	24						
Full White	0.01	0	3.54	3.98						
Cross-hatch	0.01	0	3.54	3.99						

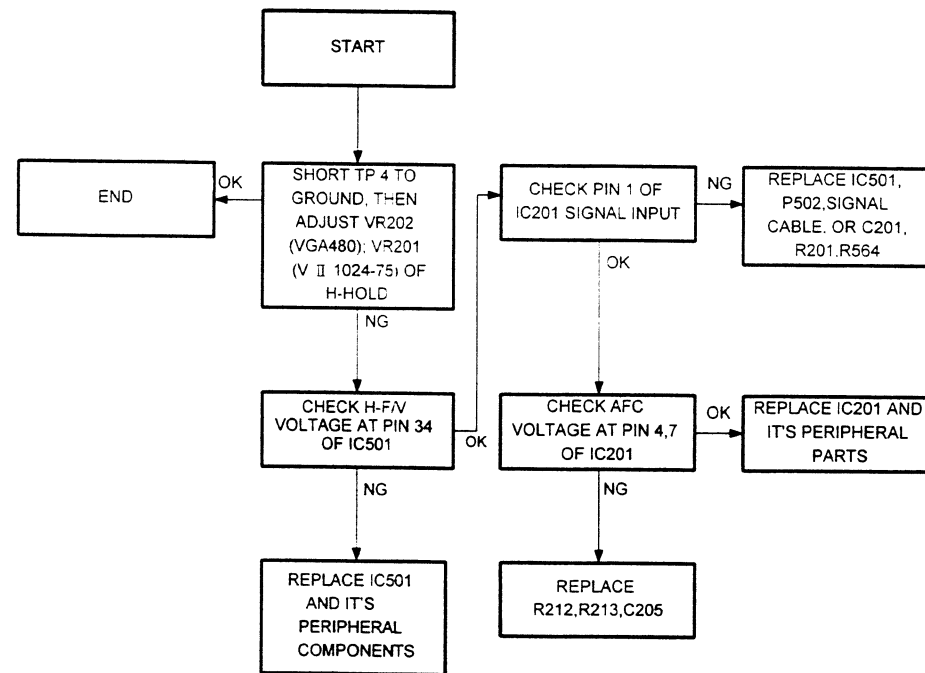
7.6 DEFLECTION CIRCUIT TROUBLESHOOTING ROUTINE

7.6.1 Horizontal Deflection Circuit

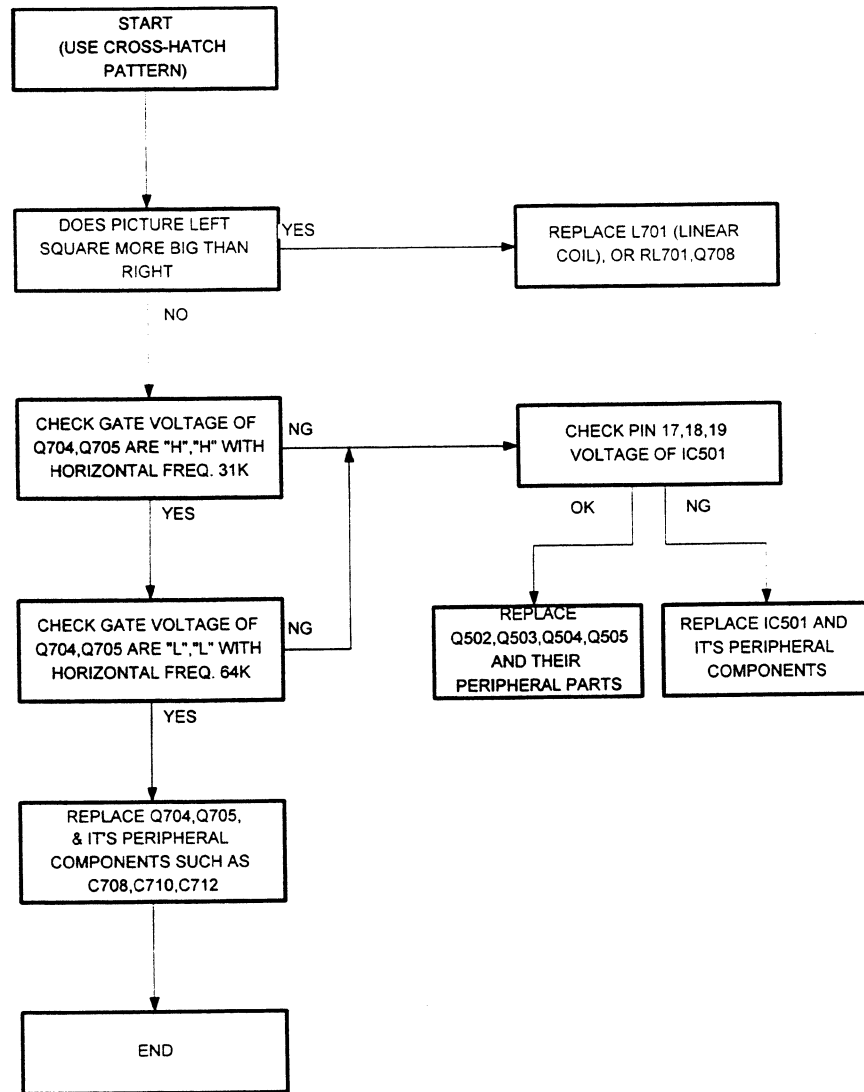
No Raster



H-Asynchronous

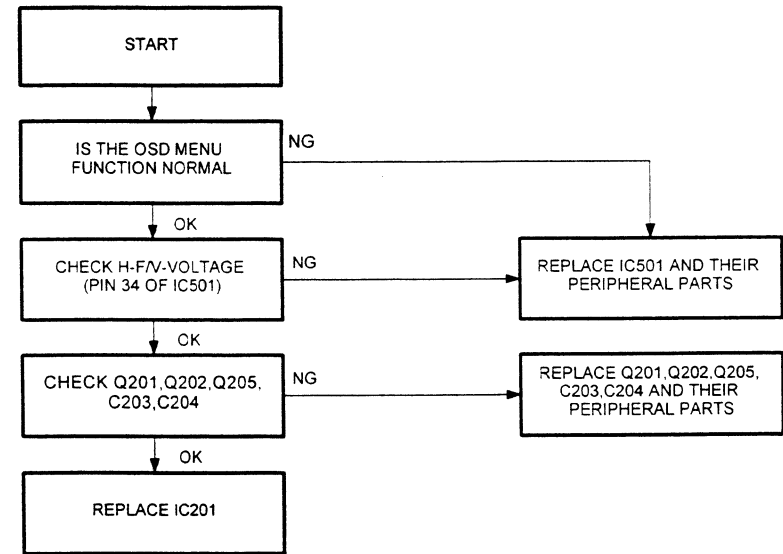


Linearity

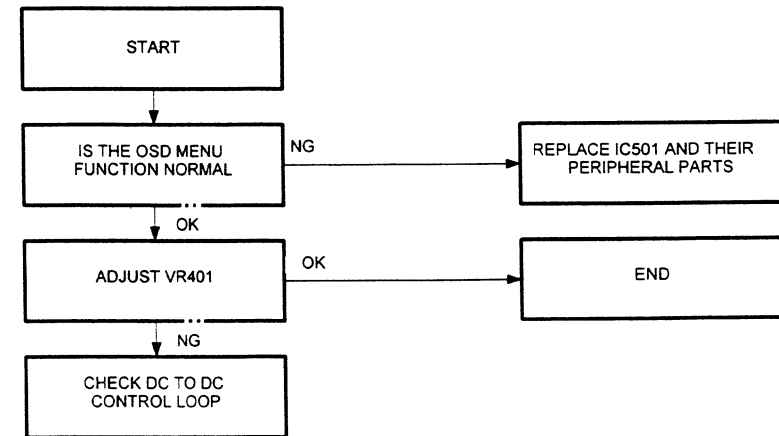


REMARK: * "L" means the voltage between gate and source is < 4V which can't turn on the MOSFET.
 ** "H" means the voltage between gate and source is $\geq 4V$ which can turn on the MOSFET.

Out of phase

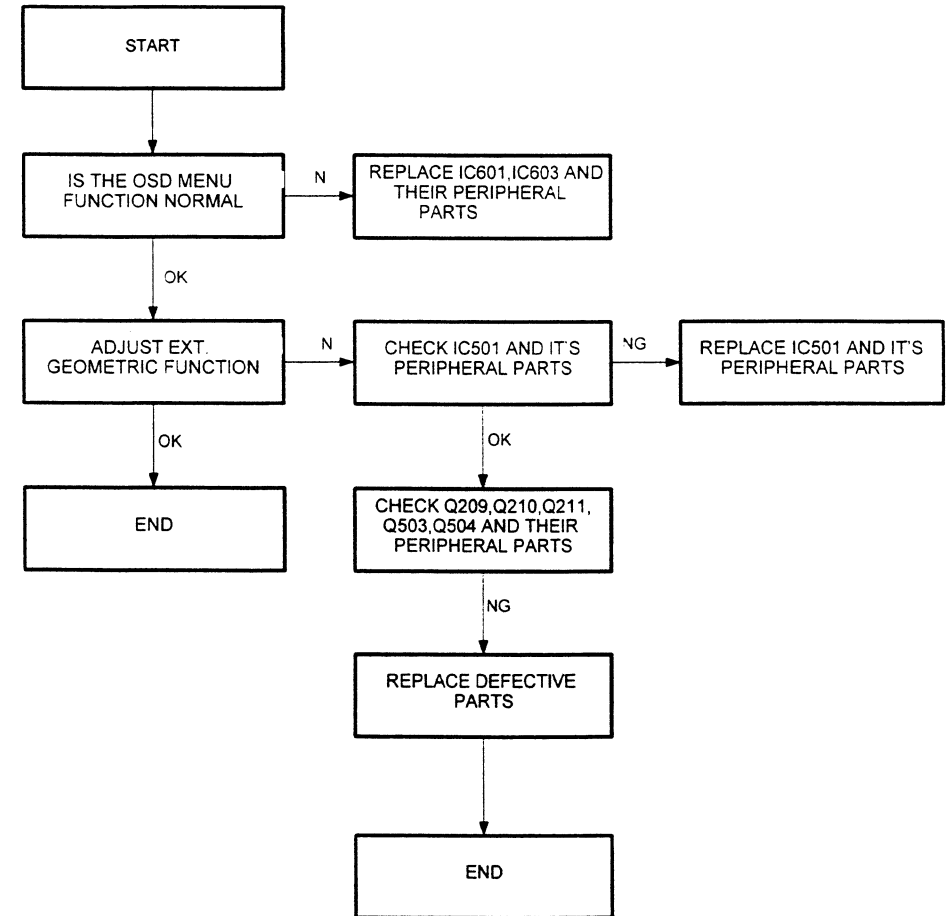
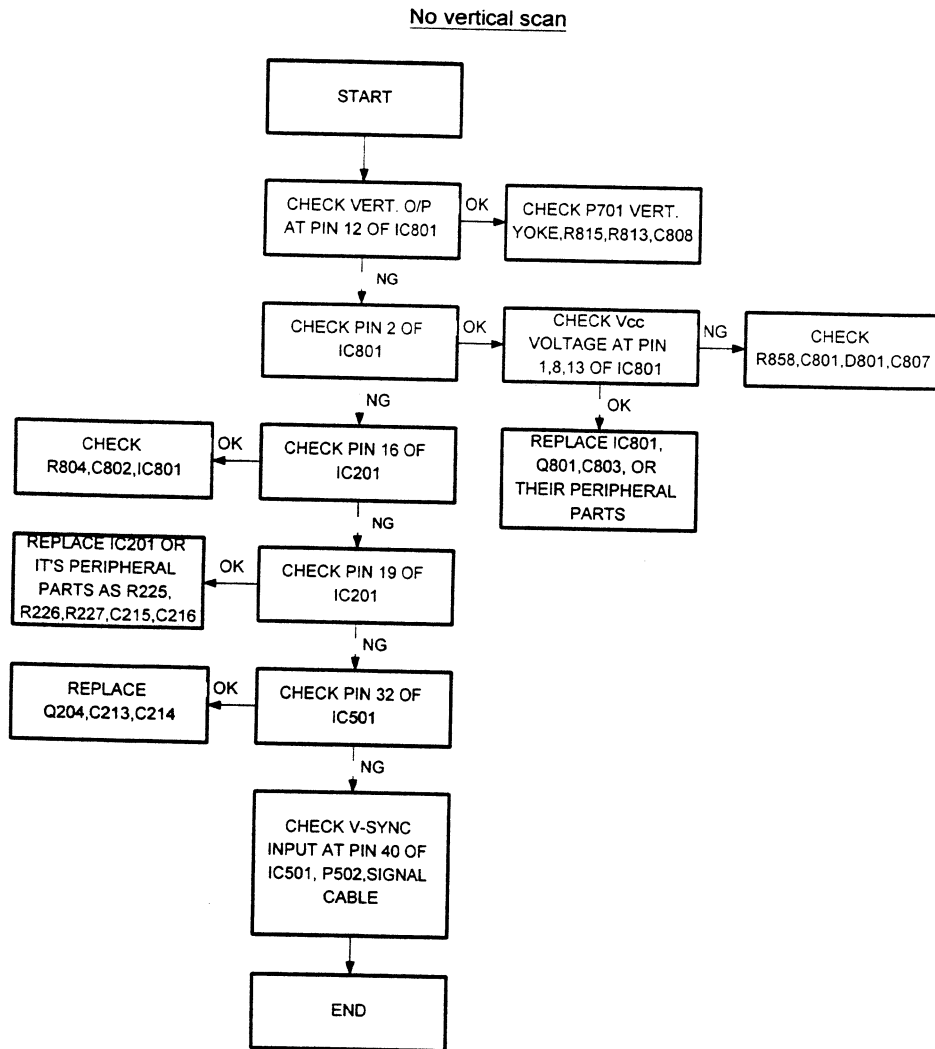


Width Abnormal

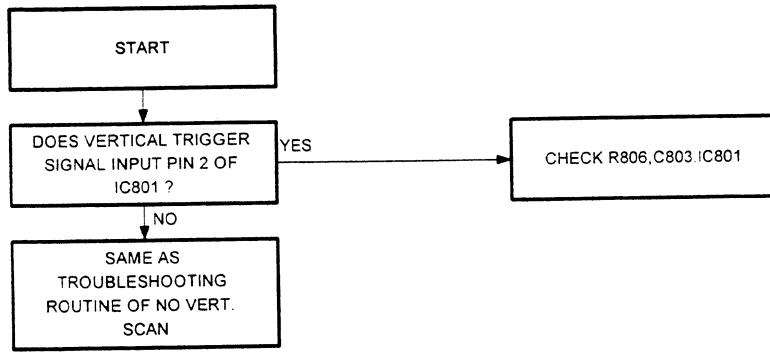


7.6.2 Vertical Deflection Circuit

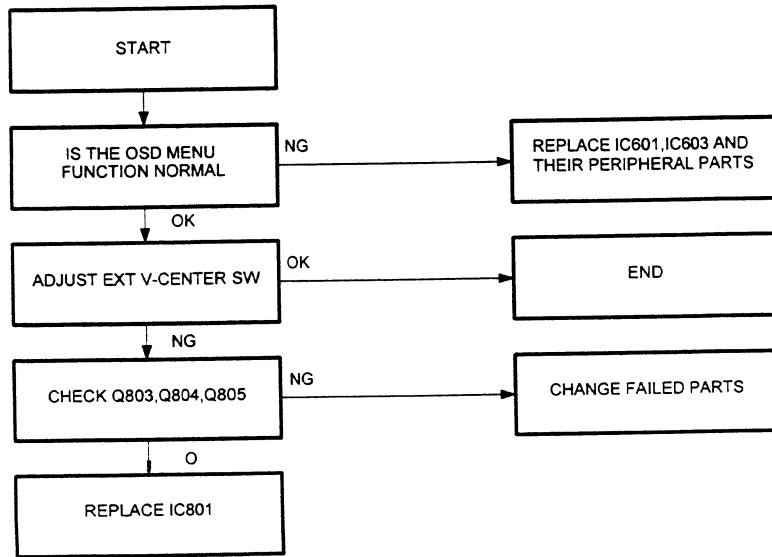
Picture distortion



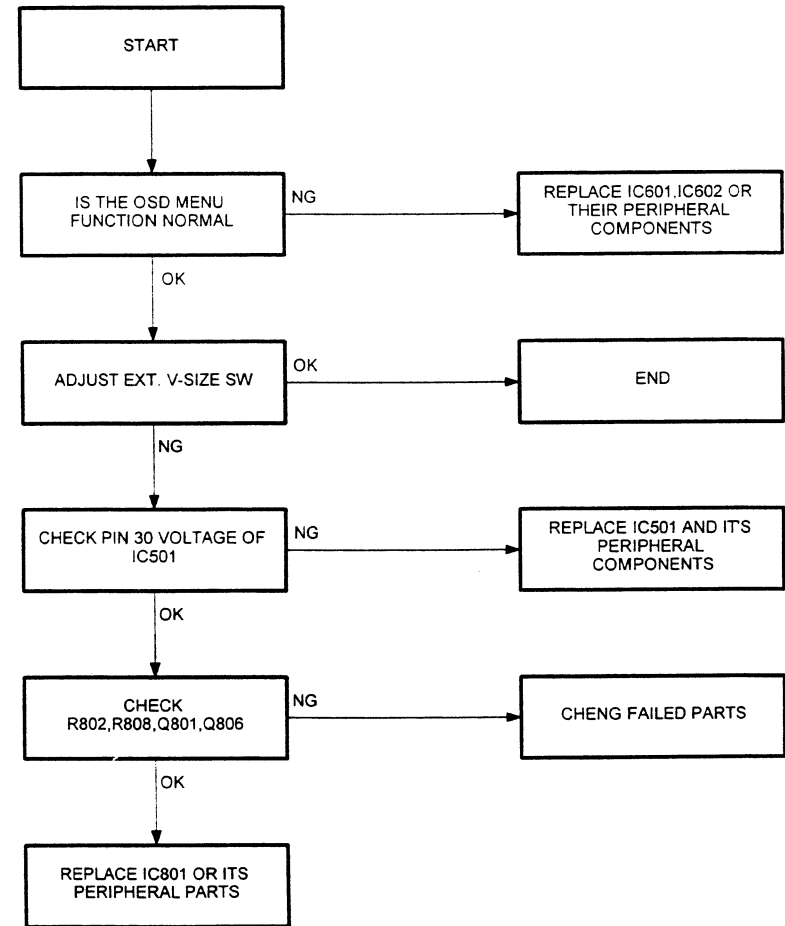
V-Asynchronous



Vertical position



Vertical Size



The following voltage records were measured with cross-hatch pattern.

Transistor

Unit: volt

TR	Q201 (A733)			Q202 (C945)			Q203 (A733)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		2.89	0	2.26	0	0	0.68	10.56	5.87	9.97
8514NI		3.74	0	3.12	0	2.94	0.14	9.89	5.82	9.29
VESA 64K		3.03	0	2.41	0	2.73	0.16	9.27	5.79	8.66

TR	Q204 (C945)			Q205 (C945)			Q206 (C945)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		0.03	12.03	0.21	2.26	11.74	2.90	4.23	11.74	4.32
8514NI		0.05	12.03	0.23	3.12	11.73	3.77	4.26	11.73	4.29
VESA 64K		0.03	12.03	0.21	2.41	11.72	3.05	4.21	11.72	4.21

TR	Q207 (A733)			Q209 (C945)			Q210 (C945)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		4.23	GND	4.32	1.51	4.41	2.16	4.41	12.02	5.02
8514NI		4.26	GND	4.29	1.51	4.39	2.16	4.39	12.02	5.02
VESA 64K		4.21	GND	4.21	1.51	4.40	2.16	4.40	12.02	5.02

TR	Q211 (C945)			Q401 (FS120M5)			Q701 (C4924)			
	PIN	E	C	B	G	D	S	B	C	E
VGA-480		4.40	8.53	5.04	1.90	40.37	0.04	-0.96	57.06	GND
8514NI		4.39	9.45	5.01	3.49	40.43	0.10	-0.83	91.07	GND
VESA 64K		4.40	8.88	5.03	4.49	40.48	0.13	-1.07	117.82	GND

TR	Q702 (C2688)			Q704 (FS12UM)			Q705 (FS12UM)			
	PIN	E	C	B	G	D	S	G	D	S
VGA-480		GND	83.46	0.22	12.03	-0.01	-0.01	10.18	-0.01	-0.01
8514NI		GND	83.59	0.15	0.22	31.52	-0.01	10.17	0.00	-0.01
VESA 64K		GND	84.43	0.16	0.21	13.37	-0.01	0.24	43.06	-0.01

TR	Q708 (JC33725)			Q709 (7KM16A)			Q711 (A733)			
	PIN	E	C	B	G	D	S	E	C	B
VGA-480		GND	0.05	0.69	12.64	4.42	GND	14.17	12.30	13.64
8514NI		GND	12.03	0.18	12.10	7.52	GND	14.25	10.75	13.78
VESA 64K		GND	12.01	0.20	11.53	15.68	GND	14.35	7.62	14.00

TR	Q712 (A733)			Q713 (C945)			Q714 (A733)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		13.02	0.00	12.30	12.63	20.19	13.02	12.63	0.00	13.02
8514NI		12.46	0.00	10.75	12.10	20.23	12.46	12.10	0.00	12.46
VESA 64K		11.85	0.00	7.62	11.52	20.19	11.85	11.52	0.00	11.85

TR	Q715 (BF423)			Q716 (C945)			Q717 (C945)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		1.80	-0.21	2.37	GND	0.29	0.73	GND	0.00	0.67
8514NI		1.90	-0.13	2.47	GND	0.29	0.73	GND	-0.07	0.57
VESA 64K		1.91	-0.13	2.49	GND	0.29	0.73	GND	0.47	-0.67

TR	Q718 (JC327-25)			Q719 (C945)			Q720 (BF488)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		-0.08	-0.58	0.38	GND	0.73	0.00	12.07	-274.35	11.51
8514NI		-0.07	-0.48	0.24	GND	0.73	0.03	12.07	-272.02	11.51
VESA 64K		-0.03	-1.07	0.44	GND	0.73	0.04	12.07	-273.11	11.51

TR	Q721 (A733)			Q801 (C945)			Q802 (A733)			
	PIN	E	C	B	E	C	B	E	C	B
VGA-480		5.41	GND	3.35	2.35	6.02	2.87	5.83	GND	5.84
8514NI		5.38	GND	3.35	2.17	6.03	2.67	5.76	GND	5.77
VESA 64K		5.39	GND	3.48	2.26	6.03	2.76	5.79	GND	5.79

TR	Q803 (C945)			Q804 (JC337-25)			Q805 (JC337-25)			Q806 (A733)			
	PIN	E	C	B	E	C	B	E	C	B	E	C	B
VGA-480		0.73	9.25	5.34	9.68	23.74	9.72	9.71	GND	9.13	2.87	GND	2.25
8514NI		0.75	9.09	1.36	9.57	23.97	9.60	9.58	GND	9.01	2.67	GND	2.05
VESA 64K		0.68	10.35	1.29	10.82	24.04	10.85	10.82	GND	10.25	2.76	GND	2.14

8.0 IC CONFIGURATION

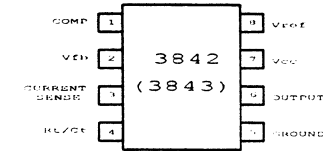
IC	IC201 (LA7851)										
MODE	PIN	1	2	3	4	5	6	7	8	9	10
VGA-480		7.60	7.65	8.31	-0.10	4.21	3.57	5.80	5.87	5.67	11.74
8514NI		7.59	7.63	8.26	-0.07	3.77	3.11	5.64	5.82	5.55	11.74
VESA 64K		7.58	7.58	8.21	-0.05	3.56	2.90	5.71	5.79	5.45	11.72

IC	IC201 (LA7851)										
MODE	PIN	11	12	13	14	15	16	17	18	19	20
VGA-480		6.06	5.29	0.11	GND	2.34	6.26	0.22	2.66	5.68	11.74
8514NI		5.98	5.26	0.11	GND	2.34	6.26	0.22	2.61	5.53	11.73
VESA 64K		5.90	5.15	0.12	GND	2.34	6.26	0.22	2.62	5.72	11.72

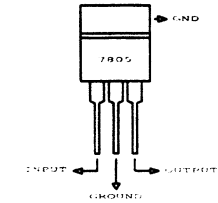
IC	IC401 (3843)								IC701 (TL431)			
MODE	PIN	1	2	3	4	5	6	7	8	R	A	K
VGA-480		2.60	2.49	0.04	0.10	GND	1.91	12.06	4.99	2.48	GND	6.42
8514NI		2.97	2.49	0.11	0.24	GND	3.51	12.07	4.99	2.48	GND	6.76
VESA 64K		2.91	2.49	0.12	0.36	GND	4.52	12.06	4.99	2.48	GND	7.49

IC	IC801 (LA7838)													
MODE	PIN	1	2	3	4	5	6	7	8	9	10	11	12	13
VGA-480		11.74	6.26	5.87	6.02	11.12	5.84	5.56	23.74	0.86	1.42	GND	13.43	23.35
8514NI		11.75	6.26	5.87	6.03	11.12	5.77	5.63	23.96	0.76	1.42	GND	13.64	23.55
VESA 64K		11.74	6.25	5.87	6.04	11.12	5.80	5.60	24.04	0.79	1.42	GND	13.47	23.64

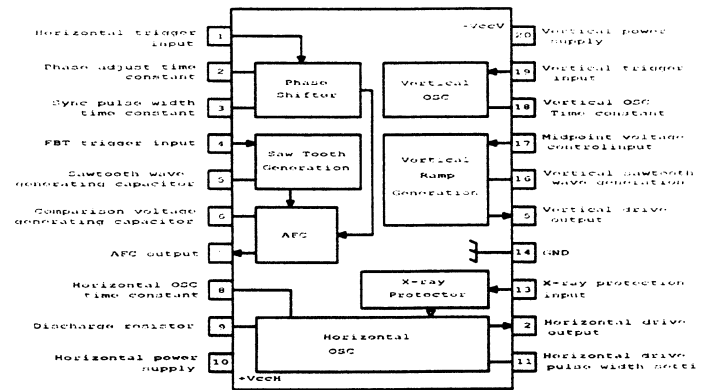
1. IC101,IC401(3842 , 3843)



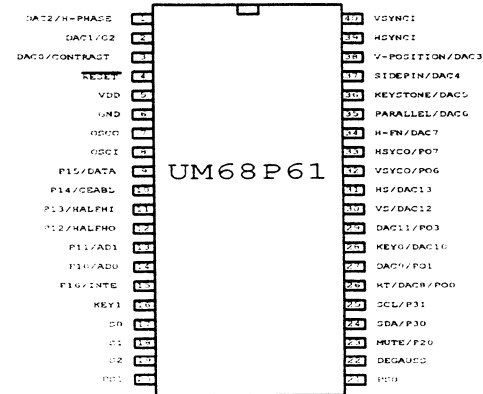
2. IC102 (7805) 5)



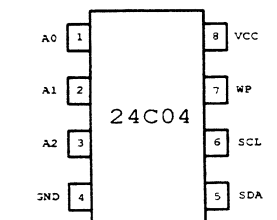
3. IC201 (LA7851)



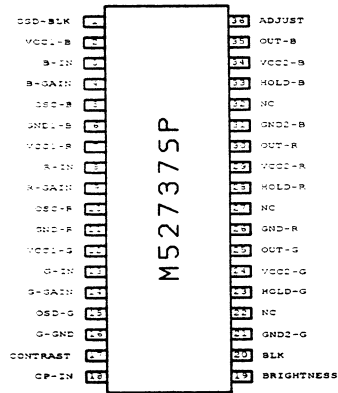
4. IC501 (UM68P61)



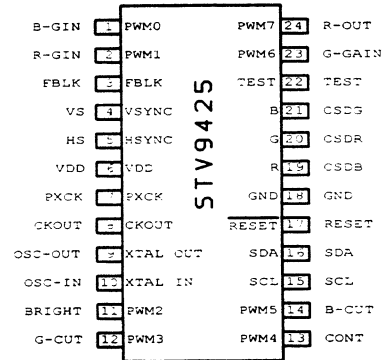
5. IC502 (24C04)



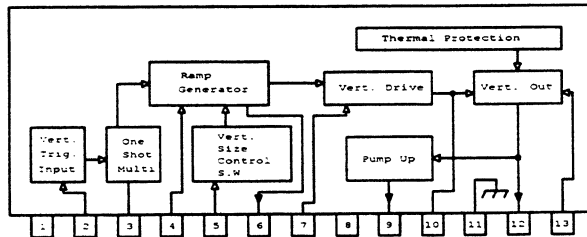
6. IC601 (M52737SP)



7. IC603 (STV9425)



8. IC801 (LA7838)



9.0 RECOMMENDED SPARE PARTS LIST

MAIN BOARD REV.A						
ITEM	PRIORITY	NEW PARTS	PART NO.	DESCRIPTION	LOCATION	REMARK
1	●		17A06-150G	3842	IC101	
2			17A07-040H	7805	IC102	
3	◎		17A06-140H	LA7851	IC201	
4	●		17A06-190H	3843	IC401	
5	◎	√	16P40-026F	68P61	IC501	
6			16M08-009R	24C04	IC502	
7			17A07-031D	TL431	IC701	
8	◎		17A06-130H	LA7838	IC801	
9			14T92-011E	SCR BT169D	Q101	
10	●		14K22-090S	2SK1507	Q104	
11			14B26-030B	2SB772	Q106, Q110	
12			14D26-0108	2SD882	Q107	
13	◎		14C92-111B	2SC945	Q108, Q111, Q202, Q205, Q206, Q503, Q713, Q801, Q803	
14	◎		14A92-021B	2SA733	Q201, Q203, Q207, Q711, Q712, Q806	
15	●		14C3P-150C	2SC4924	Q701	
16	●	√	14K22-110WU	FS12UM-5	Q704, Q705	
17			14K22-110Y	IRF630	Q401	
18		√	14C92-311E	JC337-25	Q708	
19			14C26-040B	2SC2688	Q702	
20	◎	√	14K22-280U	FS7KM16A	Q709	
21			14A92-061E	BF423	Q715	
22			15S3C-702F	DD54RC	D702	
23	●		49FB2-0A0B	250V 3.15A	F101	
24			47S00-0860H	TER35	T101	
25			47D10-0270T	EI-19	T701	
26		√	47F13-0600	FBT	T702	

CRT BOARD REV.A						
ITEM	PRIORITY	NEW PARTS	PART NO.	DESCRIPTION	LOCATION	REMARK
1	●	√	17A04-160V	M52737SP	IC601	
2	◎	√	16N24-002H	STV9425	IC603	
3			14A92-061E	BF423	Q634, Q654, Q674	
4			14C26-160C	2SC3953	Q631, Q651, Q671	
5			14A93-011A	2SA1370	Q633, Q653, Q673	
6			14C92-031E	PH2369	Q632, Q652, Q672	
7			14C92-281P	2SC1906	Q662	
8			14C92-011E	BF422	Q635, Q655, Q675	

※ Remark: ● : 1st priority , Recommended Q'ty=(Location Number) x3
 ◎ : 2nd priority , Recommended Q'ty=(Location Number) x2

10.0 PARTS LIST

1569E/SE Parts List

Abbreviations : Capacitors EL: Electrolytic Aluminum, TA: Tantalum, CE: Ceramic
 PP: Polypropylene, PEI:Polyster (Inductive),
 PEN:Polyster (Non-Inductive)PPS:Serial Poly Propylene,
 MPE:Polyster Metalized, MPP:Polypropylene Metalized.
 Resistors..... CF: Carbon Film, MF: Metal Film, VR: Variable Resistor.
 MOF: Metal Oxide Film, POT:Potentiometer
 Semiconductor... TR: Transistor, DI: Diode, ZD: Zener Diode, IC: IC.

Location	Part No.	Description	Location	Part No.	Description
TRANSISTOR					
Q101	14T92-011E	TR SCR BT169D	Q509	14C92-111B	TR NPN 2SC945P/Q
Q102	14C92-111B	TR NPN 2SC945P/Q	Q510	14C92-111B	TR NPN 2SC945P/Q
Q103	14C92-111B	TR NPN 2SC945P/Q	Q511	14C92-111B	TR NPN 2SC945P/Q
Q104	14K22-090S	TR MOS FET 2SK1507-91	Q512	14A92-021B	TR PNP 2SA733P/Q
Q106	14B26-030B	TR PNP 2SB772	Q515	14C92-111B	TR NPN 2SC945P/Q
Q107	14D26-010B	TR NPN 2SD882P/Q	Q516	14C92-311E	TR NPN JC337-25
Q109	14C92-111B	TR NPN 2SC945P/Q	Q517	14C92-311E	TR NPN JC337-25
Q110	14B26-030B	TR PNP 2SB772	Q518	14A92-021B	TR PNP 2SA733P/Q
Q111	14C92-111B	TR NPN 2SC945P/Q	Q522	14C92-111B	TR NPN 2SC945P/Q
Q201	14A92-021B	TR PNP 2SA733P/Q	Q523	14C92-111B	TR NPN 2SC945P/Q
Q202	14C92-111B	TR NPN 2SC945P/Q	Q605	14C92-111B	TR NPN 2SC945P/Q
Q203	14A92-021B	TR PNP 2SA733P/Q	Q630	14C26-160C	TR NPN 2SC3953
Q204	14C92-111B	TR NPN 2SC945P/Q	Q632	14C92-031E	TR NPN PH2369
Q205	14C92-111B	TR NPN 2SC945P/Q	Q633	14A93-041C	TR PNP 2SA1370
Q206	14C92-111B	TR NPN 2SC945P/Q	Q634	14A92-061E	TR PNP BF423
Q207	14A92-021B	TR PNP 2SA733P/Q	Q635	14C92-011E	TR NPN BF422
Q209	14C92-111B	TR NPN 2SC945P/Q	Q650	14C26-160C	TR NPN 2SC3953
Q210	14C92-111B	TR NPN 2SC945P/Q	Q652	14C92-031E	TR NPN PH2369
Q211	14C92-111B	TR NPN 2SC945P/Q	Q653	14A93-041C	TR PNP 2SA1370
Q401	14K22-110WU	TR MOS FET FS12UM-5	Q654	14A92-061E	TR PNP BF423
Q501	14A92-021B	TR PNP 2SA733P/Q	Q655	14C92-011E	TR NPN BF422
Q502	14A92-021B	TR PNP 2SA733P/Q	Q661	14C92-111B	TR NPN 2SC945P/Q
Q503	14C92-111B	TR NPN 2SC945P/Q	Q662	14C92-281P	TR NPN 2SC1906
Q504	14A92-021B	TR PNP 2SA733P/Q	Q670	14C26-160C	TR NPN 2SC3953
Q505	14A92-021B	TR PNP 2SA733P/Q	Q672	14C92-031E	TR NPN PH2369
Q506	14C92-111B	TR NPN 2SC945P/Q	Q673	14A93-041C	TR PNP 2SA1370
Q508	14C92-111B	TR NPN 2SC945P/Q	Q674	14A92-061E	TR PNP BF423
			Q675	14C92-011E	TR NPN BF422
			Q701	14C3P-150C	TR NPN 2SC4924 (LOW)
			Q702	14C26-040B	TR NPN 2SC2688K

Location	Part No.	Description	Location	Part No.	Description
Q704	14K22-110WU	TR MOS FET FS12UM-5	D404	15S11M001F	DI SW 0.5A 50V 1N4148
Q705	14K22-110WU	TR MOS FET FS12UM-5	D405	15S11M001F	DI SW 0.5A 50V 1N4148
Q708	14C92-311E	TR NPN JC337-25	D407	15S43T601T	DI HI SW 3A 200V 50NS
Q709	14K22-280U	TR MOS FET FS7KM-16A	D407*2	46R00-0300	CORE RF BRH
Q711	14A92-021B	TR PNP 2SA733P/Q	D503	15S62M201F	DI RECTIFIER 1A 100V
Q712	14A92-021B	TR PNP 2SA733P/Q	D504	15S11M001F	DI SW 0.5A 50V 1N4148
Q713	14C92-111B	TR NPN 2SC945P/Q	D630	15S11M001F	DI SW 0.5A 50V 1N4148
Q714	14A92-021B	TR PNP 2SA733P/Q	D631	15S11M001F	DI SW 0.5A 50V 1N4148
Q715	14A92-061E	TR PNP BF423	D632	15S11M001F	DI SW 0.5A 50V 1N4148
Q716	14C92-111B	TR NPN 2SC945P/Q	D633	15S11M001F	DI SW 0.5A 50V 1N4148
Q717	14C92-111B	TR NPN 2SC945P/Q	D650	15S11M001F	DI SW 0.5A 50V 1N4148
Q718	14A92-151E	TR PNP JC327-25	D651	15S11M001F	DI SW 0.5A 50V 1N4148
Q719	14C92-111B	TR NPN 2SC945P/Q	D652	15S11M001F	DI SW 0.5A 50V 1N4148
Q720	14A92-141E	TR PNP BF488	D653	15S11M001F	DI SW 0.5A 50V 1N4148
Q721	14A92-021B	TR PNP 2SA733P/Q	D664	15S11M001F	DI SW 0.5A 50V 1N4148
Q801	14C92-111B	TR NPN 2SC945P/Q	D670	15S11M001F	DI SW 0.5A 50V 1N4148
Q802	14A92-021B	TR PNP 2SA733P/Q	D671	15S11M001F	DI SW 0.5A 50V 1N4148
Q803	14C92-111B	TR NPN 2SC945P/Q	D672	15S11M001F	DI SW 0.5A 50V 1N4148
Q804	14C92-311E	TR NPN JC337-25	D673	15S11M001F	DI SW 0.5A 50V 1N4148
Q805	14A92-151E	TR PNP JC327-25	D702	15S3C-702F	DI MD SW 5A 1500V
Q806	14A92-021B	TR PNP 2SA733P/Q	D703	15S11M001F	DI SW 0.5A 50V 1N4148
DIODES					
D101	15S47T301F	DI HI SW 1.5A 600V 100NS	D704	15S65M201F	DI RECTIFIER 1A 400V
D102	15S47T301F	DI HI SW 1.5A 600V 100NS	D705	15S65M201F	DI RECTIFIER 1A 400V
D103	15S11M001F	DI SW 0.5A 50V 1N4148	D707	15S39T201F	DI MD SW 1A 1000V
D104	15S33T201F	DI MD SW 1A 200V	D709	15S33T201F	DI MD SW 1A 200V
D105	15S11M001F	DI SW 0.5A 50V 1N4148	D710	15S35T201F	DI MD SW 1A 400V
D107	15S11M001F	DI SW 0.5A 50V 1N4148	D714	15S11M001F	DI SW 0.5A 50V 1N4148
D108	15S47T301F	DI HI SW 1.5A 600V 100NS	D715	15S11M001F	DI SW 0.5A 50V 1N4148
D109	15S64-A01F	DI RECTIFIER 10A 300V	D801	15S62M201F	DI RECTIFIER 1A 100V
D110	15S45T401T	DI HI SW 2A 400V 50NS	D802	15S11M001F	DI SW 0.5A 50V 1N4148
D111	15S43T401T	DI HI SW 2A 200V 50NS	D803	15S11M001F	DI SW 0.5A 50V 1N4148
D112	15S43T601T	DI HI SW 3A 200V 50NS	D804	15S11M001F	DI SW 0.5A 50V 1N4148
D112*2	46R00-0300	CORE RF BRH	ZENER DIODES		
D113	15S11M001F	DI SW 0.5A 50V 1N4148	ZD102	15Z33M6290H	ZD 6.2V 5% 0.5W
D114	15S11M001F	DI SW 0.5A 50V 1N4148	ZD103	15Z33M1800H	ZD 18V 5% 0.5W
D116	15S33T201F	DI MD SW 1A 200V	ZD201	15Z33M8290H	ZD 8.2V 5% 0.5W
D117	15S11M001F	DI SW 0.5A 50V 1N4148	ZD202	15Z33M5190H	ZD 5.1V 5% 0.5W
D204	15S11M001F	DI SW 0.5A 50V 1N4148	ZD401	15Z33M4390P	ZD 4.3V 5% 0.5W
D207	15S33T201F	DI MD SW 1A 200V	ZD501	15Z33M3990H	ZD 3.9V 5% 0.5W
D401	15S11M001F	DI SW 0.5A 50V 1N4148	ZD502	15Z33M1200H	ZD 12V 5% 0.5W
D402	15S11M001F	DI SW 0.5A 50V 1N4148	ZD504	15Z33M5190H	ZD 5.1V 5% 0.5W
D403	15S11M001F	DI SW 0.5A 50V 1N4148	ZD505	15Z33M5190H	ZD 5.1V 5% 0.5W
			ZD702	15Z33M6290H	ZD 6.2V 5% 0.5W
			ZD704	15Z33M4390P	ZD 4.3V 5% 0.5W

Location	Part No.	Description	Location	Part No.	Description
RESISTORS			R151	22215-470M	CF 47R 5% 1/8W
R101	22245-4741	CF 470K 5% 1/2W	R201	22215-223M	CF 22K 5% 1/8W
R102	23755-3634	MOF 36K 5% 2W	R202	22215-202M	CF 2K 5% 1/8W
R103	23765-303B	MOF 30K 5% 3W	R203	22215-183M	CF 18K 5% 1/8W
R104	23765-102B	MOF 1K 5% 3W	R204	22215-102M	CF 1K 5% 1/8W
R106	22215-152M	CF 1K5 5% 1/8W	R205	22225-752M	CF 7K5 5% 1/4W
R107	23755-8204	MOF 82R 5% 2W	R206	22215-511M	CF 510R 5% 1/8W
R109	22215-472M	CF 4K7 5% 1/8W	R208	22215-273M	CF 27K 5% 1/8W
R110	22215-822M	CF 8K2 5% 1/8W	R209	22215-223M	CF 22K 5% 1/8W
R111	22215-433M	CF 43K 5% 1/8W	R210	22215-473M	CF 47K 5% 1/8W
R113	22225-394M	CF 390K 5% 1/4W	R211	22215-752M	CF 7K5 5% 1/8W
R114	22225-363M	CF 36K 5% 1/4W	R212	22215-562M	CF 5K6 5% 1/8W
R115	22215-154M	CF 150K 5% 1/8W	R213	22225-272M	CF 2K7 5% 1/4W
R116	22225-101M	CF 100R 5% 1/4W	R214	22215-333M	CF 33K 5% 1/8W
R117	22215-101M	CF 100R 5% 1/8W	R215	22215-471M	CF 470R 5% 1/8W
R118	22215-473M	CF 47K 5% 1/8W	R216	23A21-392M	MF 3K9 1% 1/4W
R119	22225-472M	CF 4K7 5% 1/4W	R217	22215-102M	CF 1K 5% 1/8W
R120	22215-560M	CF 56R 1/8W	R218	22215-822M	CF 8K2 5% 1/8W
R121	22225-271M	CF 270R 5% 1/4W	R219	22215-151M	CF 150R 5% 1/8W
R123	22225-103M	CF 10K 5% 1/4W	R220	23A11-622M	MF 6K2 1% 1/8W
R125	22225-471M	CF 470R 5% 1/4W	R221	22215-563M	CF 56K 5% 1/8W
R126	23755-2284	MOF 0.22R 5% 2W	R222	22225-471M	CF 470R 5% 1/4W
R127	22215-473M	CF 47K 5% 1/8W	R223	22215-123M	CF 12K 5% 1/8W
R128	22225-392M	CF 3K9 5% 1/4W	R224	23A21-334M	MF 330K 1% 1/4W
R129	22215-681M	CF 680R 5% 1/8W	R225	22225-823M	CF 82K 5% 1/4W
R130	22215-102M	CF 1K 5% 1/8W	R226	22225-332M	CF 3K3 5% 1/4W
R131	22215-242M	CF 2K4 5% 1/8W	R227	22215-103M	CF 10K 5% 1/8W
R132	22215-272M	CF 2K7 5% 1/8W	R228	22225-332M	CF 3K3 5% 1/4W
R133	22215-473M	CF 47K 5% 1/8W	R229	22215-222M	CF 2K2 5% 1/8W
R134	22215-751M	CF 750R 5% 1/8W	R230	23A11-203M	MF 20K 1% 1/8W
R135	22215-223M	CF 22K 5% 1/8W	R231	23A11-203M	MF 20K 1% 1/8W
R136	22225-223M	CF 22K 5% 1/4W	R232	22215-204M	CF 200K 5% 1/8W
R137	22225-223M	CF 22K 5% 1/4W	R233	22215-103M	CF 10K 5% 1/8W
R138	22225-223M	CF 22K 5% 1/4W	R234	23A21-822M	MF 8K2 1% 1/4W
R139	22215-472M	CF 4K7 5% 1/8W	R235	23A11-243M	MF 24K 1% 1/8W
R140	23245-5104	MOF 51R 5% 1W	R236	22215-222M	CF 2K2 5% 1/8W
R141	22215-472M	CF 4K7 5% 1/8W	R237	22215-752M	CF 7K5 5% 1/8W
R142	23755-1004	MOF 10R 5% 2W	R239	22215-433M	CF 43K 5% 1/8W
R143	22245-4741	CF 470K 5% 1/2W	R240	22215-103M	CF 10K 5% 1/8W
R144	22225-353M	CF 36K 5% 1/4W	R241	22215-222M	CF 2K2 5% 1/8W
R146	22215-222M	CF 2K2 5% 1/8W	R242	22215-103M	CF 10K 5% 1/8W
R147	22225-394M	CF 390K 5% 1/4W	R243	22225-222M	CF 2K2 5% 1/4W
R148	22215-223M	CF 22K 5% 1/8W	R244	22215-103M	CF 10K 5% 1/8W
R149	22215-203M	CF 20K 5% 1/8W	R245	23A11-202M	MF 2K 1% 1/8W
			R249	22215-192M	CF 1K5 5% 1/8W

Location	Part No.	Description	Location	Part No.	Description
R250	22215-122M	CF 1K2 5% 1/8W	R541	22215-222M	CF 2K2 5% 1/8W
R251	22225-221M	CF 220R 5% 1/4W	R542	22225-332M	CF 3K3 5% 1/4W
R252	23A11-202M	MF 2K 1% 1/8W	R543	22215-562M	CF 5K6 5% 1/8W
R401	23A11-202M	MF 2K 1% 1/8W	R544	22225-562M	CF 5K6 5% 1/4W
R402	23A11S015M	MF 7K32 1% 1/8W	R546	22215-103M	CF 10K 5% 1/8W
R403	22215-512M	CF 5K1 5% 1/8W	R547	22215-222M	CF 2K2 5% 1/8W
R404	22215-225M	CF 2M2 5% 1/8W	R548	22215-103M	CF 10K 5% 1/8W
R405	23A11-102M	MF 1K 1% 1/8W	R549	22225-472M	CF 4K7 5% 1/4W
R406	23755-2284	MOF 0.22R 5% 2W	R550	22215-103M	CF 10K 5% 1/8W
R407	23755-2284	MOF 0.22R 5% 2W	R551	22215-103M	CF 10K 5% 1/8W
R410	22225-224M	CF 220K 5% 1/4W	R552	22225-472M	CF 4K7 5% 1/4W
R411	23A11-224M	MF 220K 1% 1/8W	R555	22225-472M	CF 4K7 5% 1/4W
R412	22225-433M	CF 43K 5% 1/4W	R556	22215-222M	CF 2K2 5% 1/8W
R414	22215-121M	CF 120R 5% 1/8W	R557	22215-221M	CF 220R 5% 1/8W
R415	22225-121M	CF 120R 5% 1/4W	R559	22215-332M	CF 3K3 5% 1/8W
R416	22215-102M	CF 1K 5% 1/8W	R560	22225-681M	CF 680R 5% 1/4W
R417	23755-2284	MOF 0.22R 5% 2W	R562	22215-332M	CF 3K3 5% 1/8W
R418	22215-470M	CF 47R 5% 1/8W	R563	22215-332M	CF 3K3 5% 1/8W
R419	22215-471M	CF 470R 5% 1/8W	R564	22225-681M	CF 680R 5% 1/4W
R420	23755-4714	MOF 470R 5% 2W	R567	22225-152M	CF 1K5 5% 1/4W
R421	22215-104M	CF 100K 5% 1/8W	R568	22215-562M	CF 5K6 5% 1/8W
R501	22215-512M	CF 5K1 5% 1/8W	R572	22225-472M	CF 4K7 5% 1/4W
R502	22215-222M	CF 2K2 5% 1/8W	R573	22215-273M	CF 27K 5% 1/8W
R503	22225-102M	CF 1K 5% 1/4W	R574	22215-511M	CF 510R 5% 1/8W
R504	22225-301M	CF 300R 5% 1/4W	R575	22215-102M	CF 1K 5% 1/8W
R506	22215-102M	CF 1K 5% 1/8W	R576	22225-472M	CF 4K7 5% 1/4W
R507	22225-102M	CF 1K 5% 1/4W	R579	22215-101M	CF 100R 5% 1/8W
R508	22215-272M	CF 2K7 5% 1/8W	R581	22215-103M	CF 10K 5% 1/8W
R510	22225-243M	CF 24K 5% 1/4W	R582	22215-153M	CF 15K 5% 1/8W
R515	22215-563M	CF 56K 5% 1/8W	R583	22215-103M	CF 10K 5% 1/8W
R516	22225-392M	CF 3K9 5% 1/4W	R584	22215-472M	CF 4K7 5% 1/8W
R517	22215-102M	CF 1K 5% 1/8W	R585	22215-472M	CF 4K7 5% 1/8W
R519	22215-432M	CF 4K3 5% 1/8W	R586	22215-103M	CF 10K 5% 1/8W
R520	22215-332M	CF 3K3 5% 1/8W	R587	22215-473M	CF 47K 5% 1/8W
R525	22215-242M	CF 2K4 5% 1/8W	R588	22215-473M	CF 47K 5% 1/8W
R527	22215-472M	CF 4K7 5% 1/8W	R589	23A11-474M	MF 470K 1% 1/8W
R528	22215-332M	CF 3K3 5% 1/8W	R601	23A11-750M	MF 75R 1% 1/8W
R529	22215-683M	CF 68K 5% 1/8W	R602	23A11-750M	MF 75R 1% 1/8W
R530	22215-223M	CF 22K 5% 1/8W	R603	23A11-750M	MF 75R 1% 1/8W
R531	22215-511M	CF 510R 5% 1/8W	R604	22215-103M	CF 10K 5% 1/8W
R532	22215-471M	CF 470R 5% 1/8W	R605	22245-1011	CF 100R 5% 1/2W
R534	22225-302M	CF 3K 5% 1/4W	R606	22215-101M	CF 100R 5% 1/8W
R535	22225-302M	CF 3K 5% 1/4W	R607	22215-472M	CF 4K7 5% 1/8W
R537	22225-302M	CF 3K 5% 1/4W	R608	22215-822M	CF 8K2 5% 1/8W
R538	22225-302M	CF 3K 5% 1/4W	R609	22225-471M	CF 470R 5% 1/4W
R539	22225-302M	CF 3K 5% 1/4W	R610	22225-471M	CF 470R 5% 1/4W

Location	Part No.	Description	Location	Part No.	Description
R611	22225-471M	CF 470R 5% 1/4W	R663	22215-102M	CF 1K 5% 1/8W
R612	22215-103M	CF 10K 5% 1/8W	R664	22225-752M	CF 7K5 5% 1/4W
R613	22215-102M	CF 1K 5% 1/8W	R666	22225-333M	CF 33K 5% 1/4W
R614	22215-103M	CF 10K 5% 1/8W	R670	23885-1520	MOF 1K5 5% 5W
R617	22215-472M	CF 4K7 5% 1/8W	R671	22215-224M	CF 220K 5% 1/8W
R620	22245-3331	CF 33K 5% 1/2W	R672	22225-104M	CF 100K 5% 1/4W
R621	22215-101M	CF 100R 5% 1/8W	R673	22225-220M	CF 22R 5% 1/4W
R622	22225-470M	CF 47R 5% 1/4W	R674	22225-220M	CF 22R 5% 1/4W
R623	22215-470M	CF 47R 5% 1/8W	R675	22225-101M	CF 100R 5% 1/4W
R624	22215-470M	CF 47R 5% 1/8W	R676	22215-220M	CF 22R 5% 1/8W
R625	22215-102M	CF 1K 5% 1/8W	R677	22245-4701	CF 47R 5% 1/2W
R627	22215-202M	CF 2K 5% 1/8W	R678	22215-103M	CF 10K 5% 1/8W
R628	22215-223M	CF 22K 5% 1/8W	R679	22215-622M	CF 6K2 5% 1/8W
R629	22215-122M	CF 1K2 5% 1/8W	R680	22215-752M	CF 7K5 5% 1/8W
R630	23885-1520	MOF 1K5 5% 5W	R681	22215-470M	CF 47R 5% 1/8W
R631	22215-224M	CF 220K 5% 1/8W	R683	22215-102M	CF 1K 5% 1/8W
R632	22225-104M	CF 100K 5% 1/4W	R684	22215-752M	CF 7K5 5% 1/8W
R633	22225-220M	CF 22R 5% 1/4W	R685	22215-223M	CF 22K 5% 1/8W
R634	22225-220M	CF 22R 5% 1/4W	R686	22225-103M	CF 10K 5% 1/4W
R635	22225-101M	CF 100R 5% 1/4W	R687	22215-103M	CF 10K 5% 1/8W
R636	22215-220M	CF 22R 5% 1/8W	R691	22215-222M	CF 2K2 5% 1/8W
R637	22245-4701	CF 47R 5% 1/2W	R694	22215-103M	CF 10K 5% 1/8W
R638	22215-103M	CF 10K 5% 1/8W	R695	22215-102M	CF 1K 5% 1/8W
R639	22225-622M	CF 6K2 5% 1/4W	R696	22215-223M	CF 22K 5% 1/8W
R640	22215-752M	CF 7K5 5% 1/8W	R697	22215-102M	CF 1K 5% 1/8W
R641	22215-470M	CF 47R 5% 1/8W	R701	23245-5624	MOF 5K6 5% 1W
R643	22225-102M	CF 1K 5% 1/4W	R702	22215-152M	CF 1K5 5% 1/8W
R644	22215-752M	CF 7K5 5% 1/8W	R703	22225-689M	CF 6R8 5% 1/4W
R645	22215-103M	CF 10K 5% 1/8W	R704	22225-159M	CF 1R5 5% 1/4W
R646	22215-243M	CF 24K 5% 1/8W	R705	22225-220M	CF 22R 5% 1/4W
R647	22215-243M	CF 24K 5% 1/8W	R707	23745-3001	MOF 30R 5% 1W
R648	22215-243M	CF 24K 5% 1/8W	R709	22225-470M	CF 47R 5% 1/4W
R649	22215-102M	CF 1K 5% 1/8W	R710	22225-244M	CF 240K 5% 1/4W
R650	23885-1520	MOF 1K5 5% 5W	R711	22215-682M	CF 6K8 5% 1/8W
R651	22215-224M	CF 220K 5% 1/8W	R712	22215-333M	CF 33K 5% 1/8W
R652	22225-104M	CF 100K 5% 1/4W	R715	22245-4721	CF 4K7 5% 1/2W
R653	22225-220M	CF 22R 5% 1/4W	R716	22225-680M	CF 68R 5% 1/4W
R654	22225-220M	CF 22R 5% 1/4W	R717	22215-392M	CF 3K9 5% 1/8W
R655	22225-101M	CF 100R 5% 1/4W	R718	22225-102M	CF 1K 5% 1/4W
R656	22215-220M	CF 22R 5% 1/8W	R719	22225-152M	CF 1K5 5% 1/4W
R657	22225-102M	CF 1K 5% 1/4W	R720	22225-152M	CF 1K5 5% 1/4W
R657	22245-4701	CF 47R 5% 1/2W	R721	22225-271M	CF 270R 5% 1/4W
R658	22215-103M	CF 10K 5% 1/8W	R722	22225-821M	CF 820R 5% 1/4W
R659	22215-622M	CF 6K2 5% 1/8W	R723	22225-222M	CF 2K2 5% 1/4W
R660	22215-752M	CF 7K5 5% 1/8W	R724	22245-2021	CF 2K 5% 1/2W
R661	22215-470M	CF 47R 5% 1/8W	R725	22225-102M	CF 1K 5% 1/4W

Location	Part No.	Description	Location	Part No.	Description
R726	22225-102M	CF 1K 5% 1/4W	R813	22245-4791	CF 4R7 5% 1/2W
R727	22225-101M	CF 100R 5% 1/4W	R814	22215-182M	CF 1K8 5% 1/8W
R729	22215-682M	CF 6K8 5% 1/8W	R815	22245-1511	CF 150R 5% 1/2W
R730	22215-473M	CF 47K 5% 1/8W	R816	22225-332M	CF 3K3 5% 1/4W
R732	22215-470M	CF 47R 5% 1/8W	R817	22215-272M	CF 2K7 5% 1/8W
R733	23755-8204	MOF 82R 5% 2W	R818	22215-103M	CF 10K 5% 1/8W
R734	22215-203M	CF 20K 5% 1/8W	R819	23755-1214	MOF 120R 5% 2W
R735	23755-8204	MOF 82R 5% 2W	R820	22215-472M	CF 4K7 5% 1/8W
R736	22225-683M	CF 68K 5% 1/4W	R821	22215-101M	CF 100R 5% 1/8W
R737	22245-1241	CF 120K 5% 1/2W	R822	22245-3321	CF 3K3 5% 1/2W
R738	22215-332M	CF 3K3 5% 1/8W	R856	22215-104M	CF 100K 5% 1/8W
R739	22225-102M	CF 1K 5% 1/4W	R857	22215-511M	CF 510R 5% 1/8W
R740	22215-272M	CF 2K7 5% 1/8W	R858	22215-470M	CF 47R 5% 1/8W
R741	22215-562M	CF 5K6 5% 1/8W	R901	23A11-104M	MF 100K 1% 1/8W
R742	22445-105M	CF 1M 5% 1/2W	R902	23A11-104M	MF 100K 1% 1/8W
R743	22225-225M	CF 2M2 5% 1/4W	R903	23A11-563M	MF 56K 1% 1/8W
R744	23245-151B	MOF 150R 5% 1W	R904	23A11-563M	MF 56K 1% 1/8W
R745	23245-8204	MOF 82R 5% 1W	R905	22215-103M	CF 10K 5% 1/8W
R746	22215-153M	CF 15K 5% 1/8W	R906	22215-103M	CF 10K 5% 1/8W
R747	22215-153M	CF 15K 5% 1/8W	R907	23A11-333M	MF 33K 1% 1/8W
R748	22445-105M	CF 1M 5% 1/2W	R908	23A11-104M	MF 100K 1% 1/8W
R749	22215-472M	CF 4K7 5% 1/8W	R909	23A11-333M	MF 33K 1% 1/8W
R750	22215-102M	CF 1K 5% 1/8W	R910	23A11-104M	MF 100K 1% 1/8W
R751	22215-510M	CF 51R 5% 1/8W	VARIABLE RESISTOR		
R752	22215-223M	CF 22K 5% 1/8W	VR101	25B20-202B	POT 2KB 0.1W
R753	22215-223M	CF 22K 5% 1/8W	VR102	25B20-102B	POT 1KB 0.1W
R754	22215-153M	CF 15K 5% 1/8W	VR201	25AA0-202B	POT 2KB 0.1W
R755	22225-100M	CF 10R 5% 1/4W	VR202	25AA0-302B	POT 3KB 0.1W
R756	22215-102M	CF 1K 5% 1/8W	VR401	25B20-102B	POT 1KB 0.1W
R757	22215-473M	CF 47K 5% 1/8W	VR701	25A43-101BH	POT 100RB 0.5W
R758	22215-123M	CF 12K 5% 1/8W	VR702	25B20-203B	POT 20KB 0.1W
R759	22245-3331	CF 33K 5% 1/2W	VR801	25AA0-202B	POT 2KB 0.1W
R760	22215-472M	CF 4K7 5% 1/8W	CAPACITOR		
R761	22215-202M	CF 2K 5% 1/8W	C101	42A77-224A	SAFETY 0.22U 20% AC250V
R762	22215-822M	CF 8K2 5% 1/8W	C102	42D77-2224	SAFETY 2200P 20%
R763	22445-105M	CF 1M 5% 1/2W	C103	42D77-2224	SAFETY 2200P 20%
R801	22215-303M	CF 30K 5% 1/8W	C104	28ED7-1518	EL 150U 20% 400V
R802	22215-202M	CF 2K 5% 1/8W	C105	39446-1038	CE 0.01U 10% 500V
R804	22225-472M	CF 4K7 5% 1/4W	C106	39446-1038	CE 0.01U 10% 500V
R806	22215-473M	CF 47K 5% 1/8W	C107	39446-221R	CE 220P 10% 500V
R807	23A11-753M	MF 75K 1% 1/8W	C108	42D77-2224	SAFETY 2200P 20%
R808	23A31-1291	MF 1R2 1% 1/2W	C109	28H37-101R	EL 100U 20% 16V
R809	22215-102M	CF 1K 5% 1/8W	C110	31115-104R	PEI 0.1U 5% 50V
R810	22215-331M	CF 330R 5% 1/8W			
R811	22215-472M	CF 4K7 5% 1/8W			
R812	22215-472M	CF 4K7 5% 1/8W			

Location	Part No.	Description	Location	Part No.	Description
C111	28H47-101R	EL 100U 20% 25V	C225	28H67-100R	EL 10U 20% 50V
C113	39B87C104R	ML 0.1U 20% 50V	C227	28H37-101R	EL 100U 20% 16V
C114	31115-222R	PEI 2200P 5% 50V	C228	28H67-100R	EL 10U 20% 50V
C115	42A77-104C	SAFETY 0.1U 20% AC250V	C229	28H37-470R	EL 47U 20% 16V
C116	31115-222R	PEI 2200P 5% 50V	C230	28H67-100R	EL 10U 20% 50V
C118	39146-471R	CE 470P 10% 50V	C401	28H67-109R	EL 1U 20% 50V
C119	28H97-1011	EL 100U 20% 100V	C402	28J67-109R	EL 1U 20% 50V
C120	28H97-4701	EL 47U 20% 100V	C403	31115-104R	PEI 0.1U 5% 50V
C121	28N67-4711	EL 470U 20% 50V	C404	39146-102R	CE 1000P 10% 50V
C122	39446-221R	CE 220P 10% 500V	C405	39B87C333R	ML 0.033U 20% 50V
C123	28H57-4711	EL 470U 20% 35V	C406	28H67-109R	EL 1U 20% 50V
C124	28A47-6811	EL 680U 20% 25V	C407	39146-332R	CE 3300P 10% 50V
C125	28H47-4711	EL 470U 20% 25V	C408	39146-271R	CE 270P 10% 50V
C127	28H37-101R	EL 100U 20% 16V	C409	39B87C104R	ML 0.1U 20% 50V
C128	28H37-331R	EL 330U 20% 16V	C410	28H37-101R	EL 100U 20% 16V
C129	28H37-331R	EL 330U 20% 16V	C411	39146-332R	CE 3300P 10% 50V
C130	28H37-470R	EL 47U 20% 16V	C412	39146-681R	CE 680P 10% 50V
C131	39446-272R	CE 2700P 10% 500V	C415	28H67-109R	EL 1U 20% 50V
C133	42D77-222A	SAFETY 2200P 20%	C416	39446-471R	CE 470P 10% 500V
C135	39146-103R	CE 0.01U 10% 50V	C502	28H27-221R	EL 220U 20% 10V
C137	28H37-470R	EL 47U 20% 16V	C503	39B87C104R	ML 0.1U 20% 50V
C138	28H37-470R	EL 47U 20% 16V	C504	39B87C104R	ML 0.1U 20% 50V
C151	28H37-470R	EL 47U 20% 16V	C505	28H27-221R	EL 220U 20% 10V
C201	38115-470R	CE 47P 5% 50V NPO	C507	38115-330R	CE 33P 5% 50V NPO
C202	28H67-479R	EL 4U7 20% 50V	C508	38115-330R	CE 33P 5% 50V NPO
C203	31115-102R	PEI 1000P 5% 50V	C509	39B87C104R	ML 0.1U 20% 50V
C204	31115-102R	PEI 1000P 5% 50V	C510	28H37-101R	EL 100U 20% 16V
C205	31115-272R	PEI 2700P 5% 50V	C515	39146-101R	CE 100P 10% 50V
C206	31115-182R	PEI 1800P 5% 50V	C516	28H27-221R	EL 220U 20% 10V
C207	28H67-109R	EL 1U 20% 50V	C517	39B87C104R	ML 0.1U 20% 50V
C208	31115-103R	PEI 0.01U 5% 50V	C518	39146-102R	CE 1000P 10% 50V
C209	33322-222R	PPI 2200P 2% 100V	C519	39146-102R	CE 1000P 10% 50V
C210	28H67-109R	EL 1U 20% 50V	C520	39146-102R	CE 1000P 10% 50V
C211	39B87C104R	ML 0.1U 20% 50V	C521	39146-102R	CE 1000P 10% 50V
C212	28H37-471R	EL 470U 20% 16V	C522	39146-102R	CE 1000P 10% 50V
C213	28H67-109R	EL 1U 20% 50V	C523	39146-102R	CE 1000P 10% 50V
C214	31115-104R	PEI 0.1U 5% 50V	C524	28H67-100R	EL 10U 20% 50V
C216	31115-103R	PEI 0.01U 5% 50V	C525	39146-103R	CE 0.01U 10% 50V
C217	28H37-470R	EL 47U 20% 16V	C526	39146-102R	CE 1000P 10% 50V
C218	28H37-1021	EL 1000U 20% 16V	C527	28H67-479R	EL 4U7 20% 50V
C219	28H67-478R	EL 0.47U 20% 50V	C528	39146-222R	CE 2200P 10% 50V
C220	28H67-109R	EL 1U 20% 50V	C529	39B87C333R	ML 0.033U 20% 50V
C221	38115-271R	CE 270P 5% 50V NPO	C530	28H37-101R	EL 100U 20% 16V
C222	28H67-100R	EL 10U 20% 50V	C532	39B87C104R	ML 0.1U 20% 50V
C223	39146-103R	CE 0.01U 10% 50V	C533	39146-101R	CE 100P 10% 50V
C224	28467-109R	EL 1U 20% 50V	C534	39146-101R	CE 100P 10% 50V

Location	Part No.	Description	Location	Part No.	Description
C535	39146-101R	CE 100P 10% 50V	C651	38115-101R	CE 100P 5% 50V NPO
C536	39146-101R	CE 100P 10% 50V	C652	28H97-109R	EL 1U 20% 100V
C537	28H67-109R	EL 1U 20% 50V	C653	28H67-109R	EL 1U 20% 50V
C538	39146-103R	CE 0.01U 10% 50V	C660	28H97-109R	EL 1U 20% 100V
C539	28H67-100R	EL 10U 20% 50V	C670	28H97-109R	EL 1U 20% 100V
C601	28H67-109R	EL 1U 20% 50V	C671	38115-101R	CE 100P 5% 50V NPO
C602	28H67-109R	EL 1U 20% 50V	C672	28H97-109R	EL 1U 20% 100V
C604	28H67-109R	EL 1U 20% 50V	C673	28H67-109R	EL 1U 20% 50V
C605	39146-103R	CE 0.01U 10% 50V	C674	38115-330R	CE 33P 5% 50V NPO
C606	39146-103R	CE 0.01U 10% 50V	C675	38115-330R	CE 33P 5% 50V NPO
C607	28H37-101R	EL 100U 20% 16V	C680	28H97-109R	EL 1U 20% 100V
C608	39146-103R	CE 0.01U 10% 50V	C686	31115-223R	PEI 0.022U 5% 50V
C609	28H67-109R	EL 1U 20% 50V	C691	39B87C104R	ML 0.1U 20% 50V
C610	28H67-109R	EL 1U 20% 50V	C692	39146-101R	CE 100P 10% 50V
C611	28H67-109R	EL 1U 20% 50V	C696	39146-471R	CE 470P 10% 50V
C612	28H37-101R	EL 100U 20% 16V	C701	39146-102R	CE 1000P 10% 50V
C613	39146-103R	CE 0.01U 10% 50V	C702	28637-2211	EL 220U 20% 16V
C614	39646-102B	CE 1000P 10% 2KV	C703	375A5-6827H	PPS 6800P 5% 1.6KV
C615	28H37-101R	EL 100U 20% 16V	C704	37575-4727H	PPS 4700P 5% 1.2KV
C616	28H07-2201	EL 22U 20% 160V	C708	35145-1044	MPP 0.1U 5% 250V
C617	39446-102R	CE 1000P 10% 500V	C709	39146-103R	CE 0.01U 10% 50V
C618	39146-103R	CE 0.01U 10% 50V	C710	35145-2746	MPP 0.27U 5% 250V
C619	39146-103R	CE 0.01U 10% 50V	C711	39146-103R	CE 0.01U 10% 50V
C620	39146-103R	CE 0.01U 10% 50V	C712	35145-6847	MPP 0.68U 5% 250V
C621	39146-103R	CE 0.01U 10% 50V	C716	35155H3047	MPP 0.3U 5% 400V
C622	28H67-109R	EL 1U 20% 50V	C717	28H67-479R	EL 4U7 20% 50V
C623	28H67-109R	EL 1U 20% 50V	C719	28H67-109R	EL 1U 20% 50V
C624	28H67-109R	EL 1U 20% 50V	C720	28J67-478R	EL 0.47U 20% 50V
C626	39146-103R	CE 0.01U 10% 50V	C721	28J67-109R	EL 1U 20% 50V
C627	39146-103R	CE 0.01U 10% 50V	C722	39B87C104R	ML 0.1U 20% 50V
C628	39146-103R	CE 0.01U 10% 50V	C723	39B87C334R	ML 0.33U 20% 50V
C629	39146-103R	CE 0.01U 10% 50V	C724	28H57-101R	EL 100U 20% 35V
C630	28H97-109R	EL 1U 20% 100V	C725	28HB7-479R	EL 4U7 20% 250V
C631	38115-101R	CE 100P 5% 50V NPO	C726	28H27-221R	EL 220U 20% 10V
C632	28H97-109R	EL 1U 20% 100V	C727	39146-102R	CE 1000P 10% 50V
C633	28H67-109R	EL 1U 20% 50V	C728	28H37-470R	EL 47U 20% 16V
C634	28H67-109R	EL 1U 20% 50V	C729	35145-5647	MPP 0.56U 5% 250V
C640	28H97-109R	EL 1U 20% 100V	C730	39B87C104R	ML 0.1U 20% 50V
C641	39146-103R	CE 0.01U 10% 50V	C731	39446-221R	CE 220P 10% 500V
C642	39146-103R	CE 0.01U 10% 50V	C732	39146-102R	CE 1000P 10% 50V
C644	39146-103R	CE 0.01U 10% 50V	C735	39446-272R	CE 2700P 10% 500V
C646	39B87C104R	ML 0.1U 20% 50V	C736	28H37-470R	EL 47U 20% 16V
C647	39B87C104R	ML 0.1U 20% 50V	C737	28HB7-229R	EL 2U2 20% 250V
C648	28H67-109R	EL 1U 20% 50V	C738	39446-102R	CE 1000P 10% 500V
C649	38115-470R	CE 47P 5% 50V NPO	C742	39546-1038	CE 0.01U 10% 1KV
C650	28H97-109R	EL 1U 20% 100V	C743	39446-102R	CE 1000P 10% 500V

Location	Part No.	Description	Location	Part No.	Description
C744	28H67-109R	EL 1U 20% 50V	L106	45M1K-1214	COIL CHOKE 120U 10%
C745	28H67-109R	EL 1U 20% 50V	L107	45M1K-4704	COIL CHOKE 47U
C746	28H37-470R	EL 47U 20% 16V	L401	46N00-0410	COIL LINE CHOKE 85uH
C747	31115-104R	PEI 0.1U 5% 50V	L501	45B0K-102T	COIL PEAKING 1000U
C801	28H37-331R	EL 330U 20% 16V	L601	45B0K-100T	COIL PEAKING 10U
C802	39146-102R	CE 1000P 10% 50V	L604	45B0K-101T	COIL PEAKING 100U
C803	39146-102R	CE 1000P 10% 50V	L630	45B0K-569T	COIL PEAKING 5U6
C804	28H67-100R	EL 10U 20% 50V	L650	45B0K-569T	COIL PEAKING 5U6
C805	346B5-334R	MPE 0.33U 5% 63V	L670	45B0K-569T	COIL PEAKING 5U6
C806	28H57-101R	EL 100U 20% 35V	L701	46L00-0460L	COIL LINEAR 7.7uH
C807	28H57-1021	EL 1000U 20% 35V	L702	46N00-0320	COIL LINE CHOKE 2.7mH 10%
C808	31115-104R	PEI 0.1U 5% 50V	L705	45M1K-4704	COIL CHOKE 47U
C809	28H67-100R	EL 10U 20% 50V	L706	46N00-0330	COIL LINE CHOKE 820uH 10%
C810	28H47-2225	EL 2200U 20% 25V	TRANSFORMERS		
C811	28H67-100R	EL 10U 20% 50V	T101	47S00-0860H	XFMR SPS EE-35
C812	38496-100R	CE 10P 10% 500V	T701	47D10-0270T	XFMR DRIVE EI-19
C820	28H57-221R	EL 220U 20% 35V	T702	47F13-0600	XFMR FBT
C821	39B87C104R	ML 0.1U 20% 50V	WFOCUS/SCREENCR BLOCK		
COILS					
L102	47E00-0260	XFMR EMI ET-24			
L103	47E00-0110	XFMR EMI UU-10.5			
L104	45M1K-4704	COIL CHOKE 47U			

Location	Part No.	Description
TEGRATED CIRCUITS		
IC101	17A06-150G	IC LINEAR 8P DEFLECTION3842
IC102	17A07-040H	IC LINEAR VOLTAGE REGULATOR 7805 3P
IC201	17A06-140H	IC LINEAR DEFLECTION 7851 20P
IC401	17A06-190G	IC LINEAR 8P DEFLECTIONUC3843B
IC501	16P40-026F	IC MICRO-PPROCESSOR 40P68P61 MASK ROM
IC502	16M08-009Z	IC EEPROM 8P AT24C04 (B)-10PC (BLANK)
IC601	17A04-160V	IC LINEAR 36P VIDEO M52737SP
IC603	16N24-002H	IC CONTROLLER 24P STV9425
IC701	17A07-031D	IC LINEAR 3P VOLTAGE REGULATOR 431
IC801	17A06-130H	IC LINEAR DEFLECTION 7838 13P
MISCELLANEOUS		
	20H15-11AC	CRT C-.27 NG M36KPC030X01 W
	11S31-067A	PCB MAIN-S 303*247*1.6MM 1569E
	11S33-032A	PCB CRT-S 138*120*1.6MM1569E
	11S39-028A	PCB LED-S 1565D2 19.1*14*1.6MM
	11S3D-031A	PCB DISPLAY-S 152*23.3*1.6MM 1569E
	54B11-7206	WIRE BRAID 72CM
	54B12-1403	WIRE BRAID W/TUBE 14CM
	56C63-1802	POWER CORD USA 3P U/C/F1M8-B 125V10A
	64C30-0090	SOCKET CRT COLOR-H
	65S10-1751G	CABLE SIGNAL 15D-11H 3+6 175CM BLACK W/C
	65W31321T0	CONN H WIRE 1007#24 3P 2.5 21L-T W/TUBE
	7622137140	BRACKET POWER
	7904451000	SLEEVING INSULATING
	19D0A-0010	DIODE LED BICOLOR W-DIFFUSED (L-119YGW)
	46G00-0065	COIL DEGAUSSING (100T)
	46G00-0085	COIL ROTATION (300T)
FD101	46R00-0010	CORE RF BEAD RHW
FD601	46R00-0010	CORE RF BEAD RHW
FD602	46R00-0500	CORE RF C8 BRH
FD630	46R00-0010	CORE RF BEAD RHW
FD650	46R00-0010	CORE RF BEAD RHW
FD670	46R00-0010	CORE RF BEAD RHW
FD701	46R00-0500	CORE RF C8 BRH
RL101	53R001-008S	RELAY COIL DC12V 5A/250V (2-A)
RL701	53R001-011	RELAY COIL DC12V 10A/125V
SG601	42S00-0301	SPARK GAP DSP-301N 300V30%
SG630	42S00-0201	SPARK GAP DSP-201M 200V20%
SG650	42S00-0201	SPARK GAP DSP-201M 200V20%
SG670	42S00-0201	SPARK GAP DSP-201M 200V20%
SW101	52P12-0030	SWITCH POWER 1P2T 5A250V

11.0 CRT CONTRAST LIST

THE 1569SE SERIES MONITOR HAVE SEVERAL KINDS OF CRTs AS BELOW.
THE DIFFERENT PARTS BETWEEN THEM IS SHOWN IN BELOW TABLE.

Location	Part No.	Description
SW901	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW902	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW903	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW904	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW905	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW906	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW907	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
SW908	52P11-0050	SWITCH PRESS W/O LOCK H=9.5MM
XL501	60R01-0010	RESONATOR 8MHZ
XL601	60R01-0010	RESONATOR 8MHZ
B	54L23B290Z	WIRE LEAD 1015#18 29L BLACK 5/TUBE
BD101	15D68-F000	DI BRIDGE 4A 800V
C-C'	54N23B0700	WIRE LEAD 1015#18 7L BK
G2	65W13528B0	CONN H WIRE 1032#22 1P 28L W/CORE
H-H'	54N16B1350	WIRE LEAD 1007#24 13L GRE
F-F'	54N16B0880	WIRE LEAD 1007#24 8L GREY
F101	49FB2-0A0A	FUSE SLOW 3.15A 250V (NORDIC)
FBT H/S-CRT/B HIED COVER	54S23B1700	WIRE TERMINAL/PLUG 1015#18 17L BLACK
M/B	7906618200	SUPPORT SPACER (PCB) (FCB-12A)
NTC101	26B00-0081	NTCR 8R 15% 3A P=7.5MM
P101	14P20-1010	SOCKET POWER
P102	64B32-0031	HEADER 5.08 L1*3P 2W -2 ND
P103	64B27-4000	HEADER 3.96 L1*2P S/W
P501	64B2F-F010	HEADER 2.5 S1*2P A/W
P504	64B31-3000	HEADER 2.5 S1*3P A/W
P701	64B43-0030	HEADER 10/8 L1*4F L=11MM
P506	64B61-3000	HEADER 2.5 S1*6P A/W
P702	64B80-0010	HEADER 2.54 DUAL S2*4P L=6MM
P901	65W61325D1	CONN H/T WIRE 1007#24 6P2.5/2.0 25L-T
P104-P703	65W21320D0	CONN T/T WIRE 1007#24 2P 2.5 20L-T
P502-CRT/B P602	65W01333D1	CONN H/T WIRE 1007#24 10P 2.5 33L-T
P705-CRT/B P603	65W91333D0	CONN H/T WIRE 1007#24 9P-1 2.5 33L-T
CRT-D.S.G. COIL	7906950200	CABLE CLIP (WIRE MOUNTS)
SIGNAL CABLE	7635988440	CABLE CLAMP D=5.5MM
PTC101	26A00-0080	PTCR 9R 20% 2P

CRT VENDOR PART NO.	PHILIPS 20H15-08AB M36EDR320X131 /2F01(MASK)	PANASONIC 20H15-11AC M36KPC030X01 W
R402	6.8K 1% 1/8W 23A11-682M	7.32K 1% 1/8W 23A11S015M
R412	180K 5% 1/4W 22225-184M	43K 5% 1/4W 22225-433M
R807	68K 1% 1/8W 23A11-683M	75K 1% 1/8W 23A11-753M
R736	100K 5% 1/4W 22225-104M	68K 5% 1/4W 22225-603M
C738	680P 500V 39446-681R	1000P 500V 39446-102R
R145	1 Ω 5% 2W 23755-1094	15mm JUMPER WIRE 54J05-150B
R666	18K 5% 1/4W 22225-183M	33K 5% 1/4W 22225-333M

12.0 LAYOUT FOR MAIN COMPONENTS AND ADJUSTED

13.0 CIRCUIT DIAGRAM

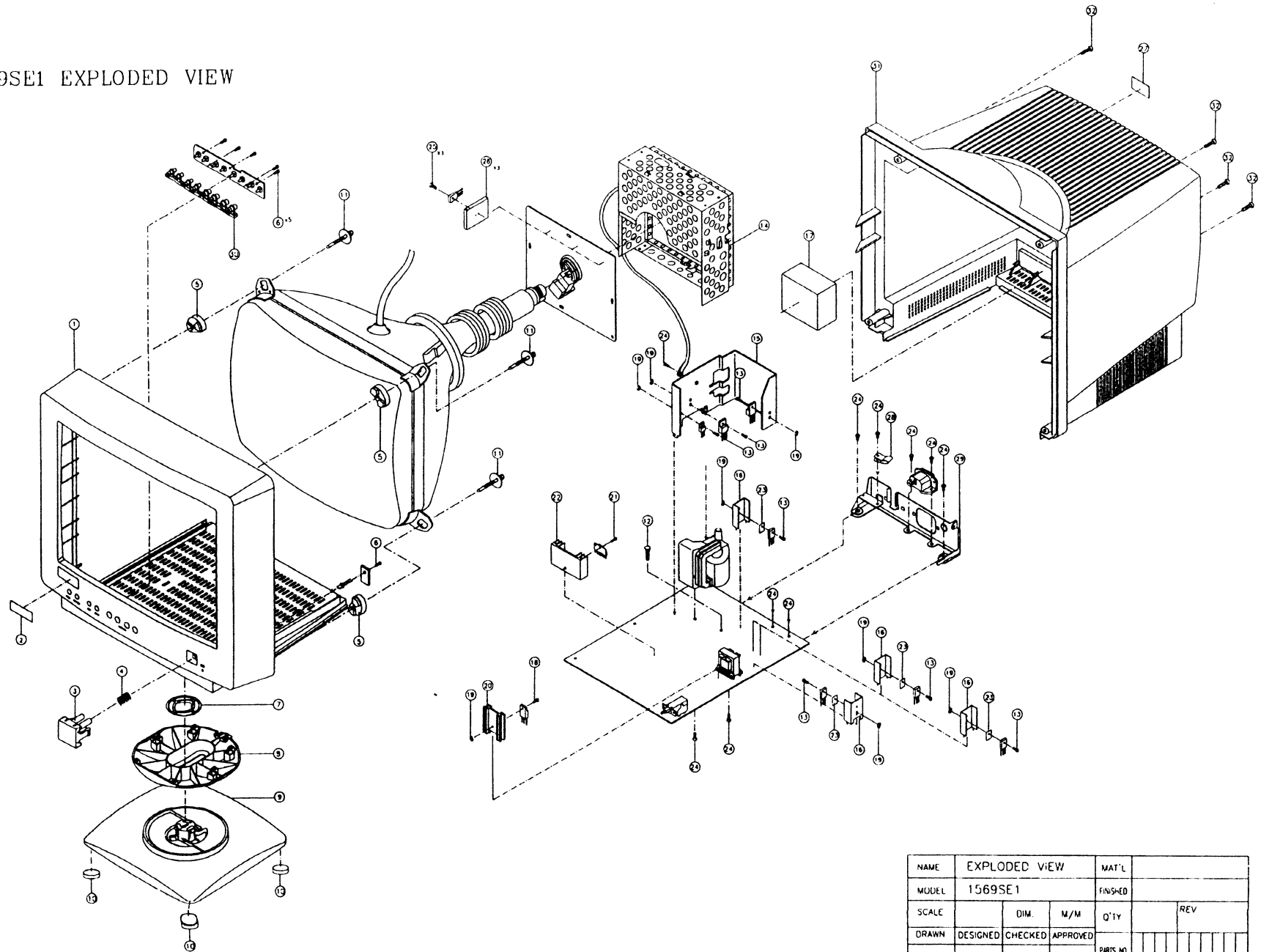
14.0 EXPLODED VIEW

CTX 1569SE1 EXPLODED VIEW PARTS LIST

NO.	PARTS NO.	DESCRIPTION	QTY
1	0820005001	FRONT CABINET I	1
2	7140078400	NAME PLATE	1
3	7113796000	POWER KNOB	1
4	7306147110	STRONG	1
5	7410012300	CRT SPACFR 4m/m	4
6	6724430080	SCRW T3x8	6
7	0813611350	DISK	1
8	0810003300	SWELL BOWL	1
9	0831329300	SWELL BASE	1
10	7416343420	RUBBER FOOT	4
11	6720040250	STRW 14x25 W/MSR	4
12	7906618200	SUPP GR1 SPACFR	1
13	6720430080	SCRW M3x8	7
14	7500039000	SHIELD COVER (B)	1
15	7512153200	HEI HEAI SINK	1
16	7516673850	HEAI SINK	4
17	7420005100	CUSHION PLATE	1
18	6720430100	SCRW M3x10	1
19	6740030240	NUJ	7
20	7515189220	HEAI SINK	1
21	6724430080	SCRW T3x8	1
22	7516636220	HEAI SINK	1
23	7414452000	INSULATING SHEET	4
24	6724430080	SCRW T3x8 (WASHER)	8
25	6724426060	SCRW 12.6x6	3
26	7516786650	HEAI SINK	3
27	7140233601	OVERLAY	1
28	7635988440	CABLE CLAMP	1
29	76230291100	AC INPUT BRACKET	1
30	7110000000	FIBER-ION KEY	1

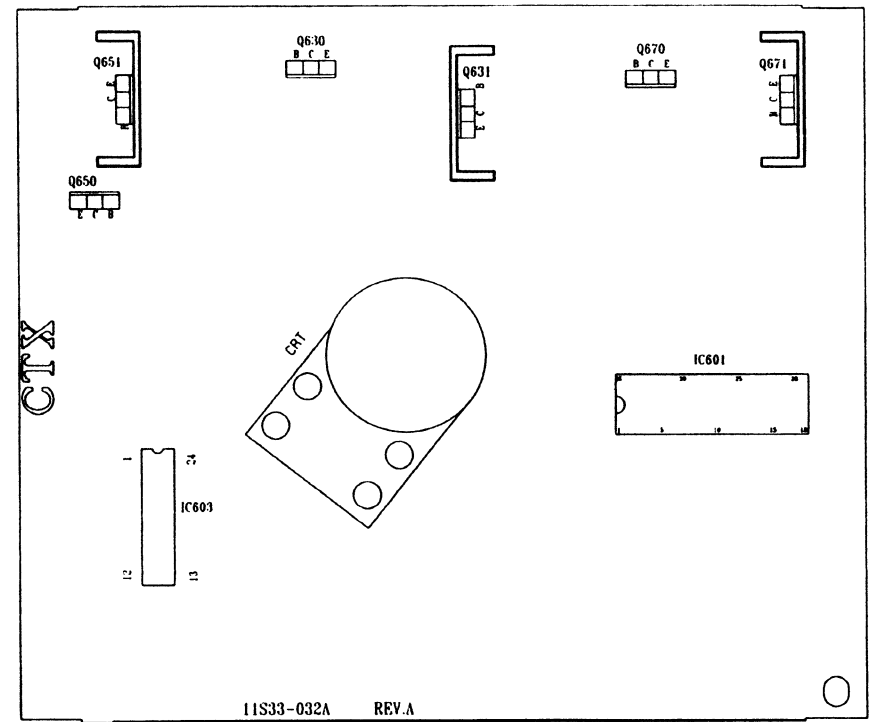
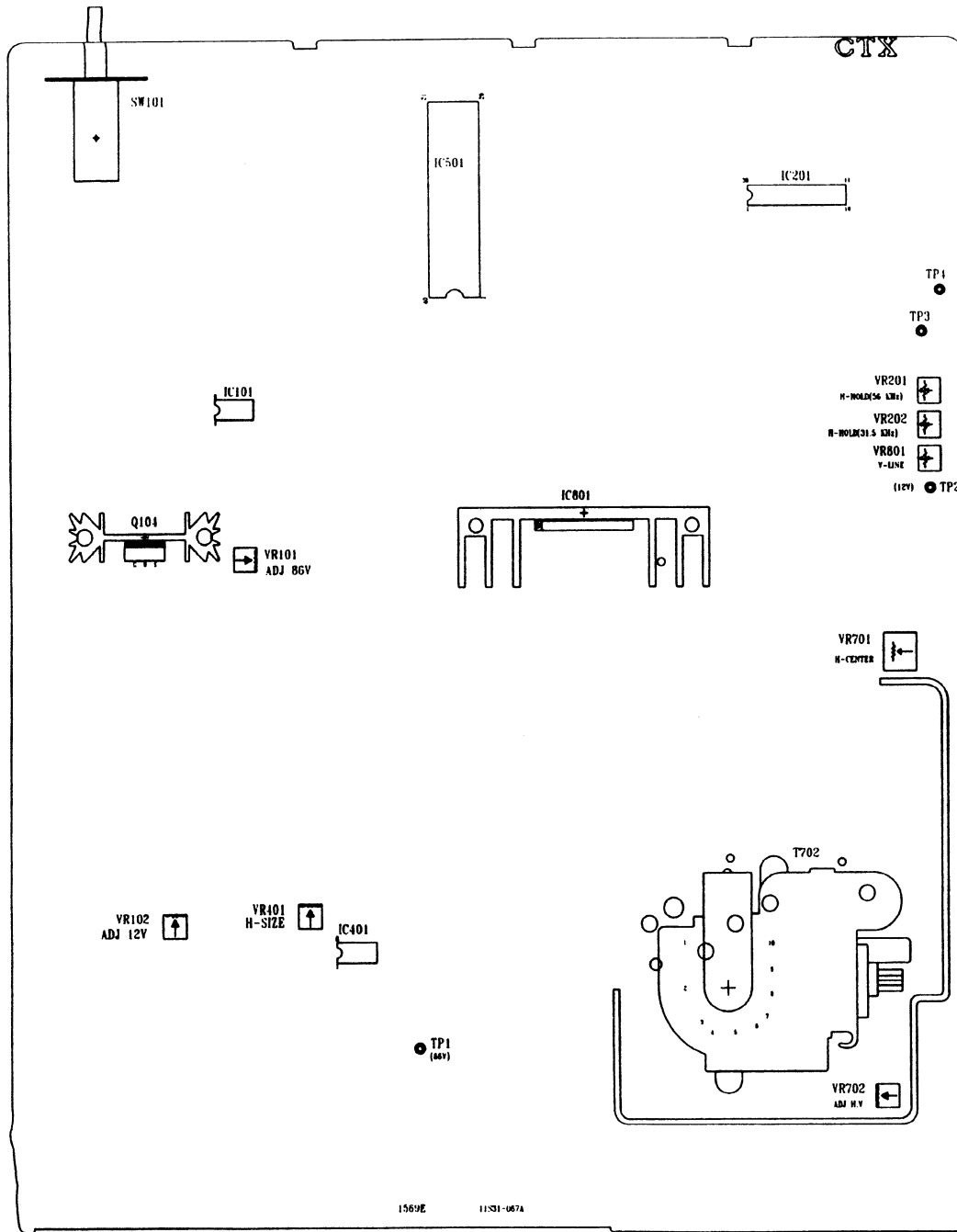
NO.	PARTS NO.	DESCRIPTION	QTY
31	0800004000	BACK CABINET I	1
32	6776040160	SCRW P14x16	4
33			
34			
35			
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37			
38			
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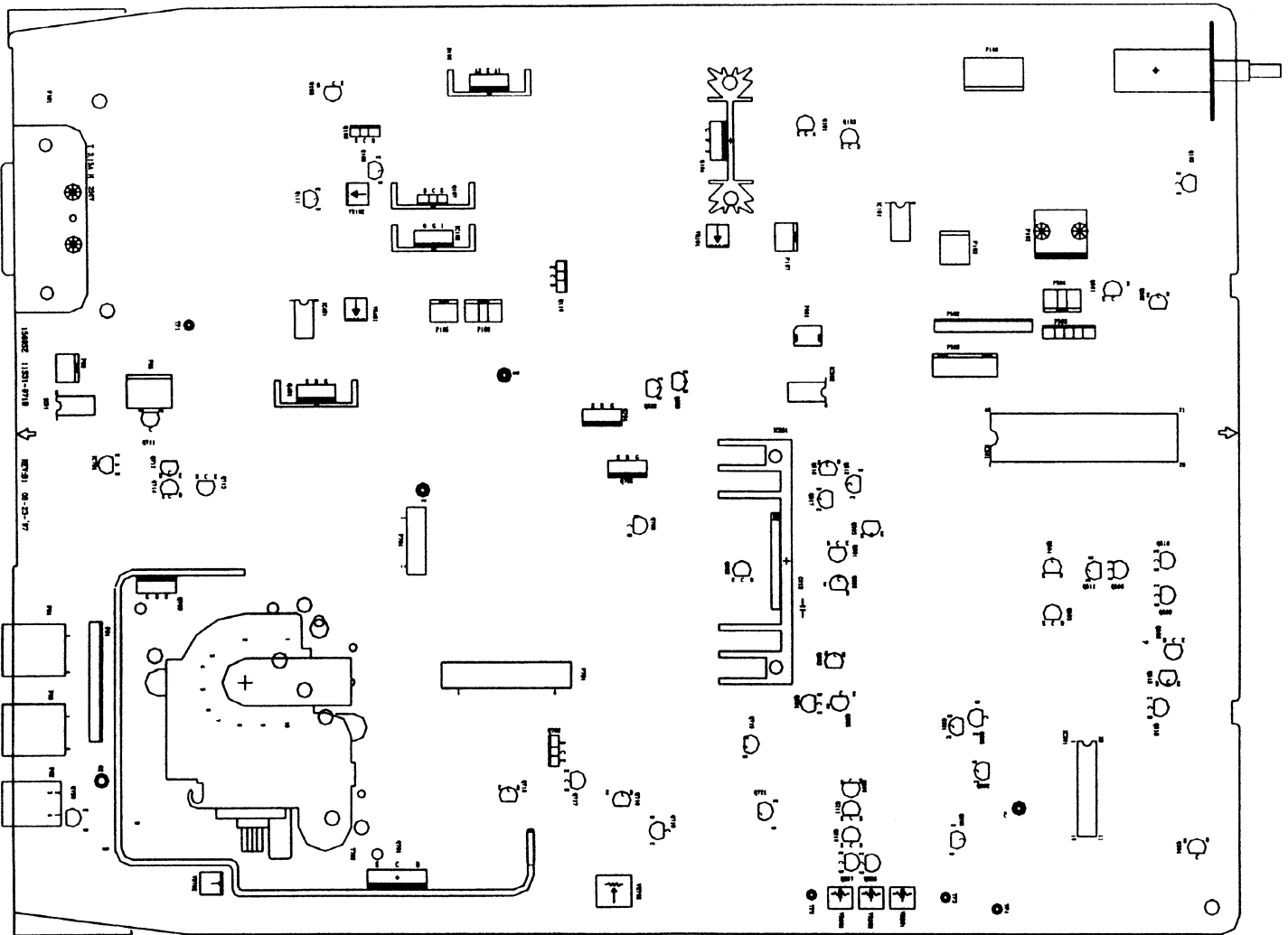
1569SE1 EXPLODED VIEW

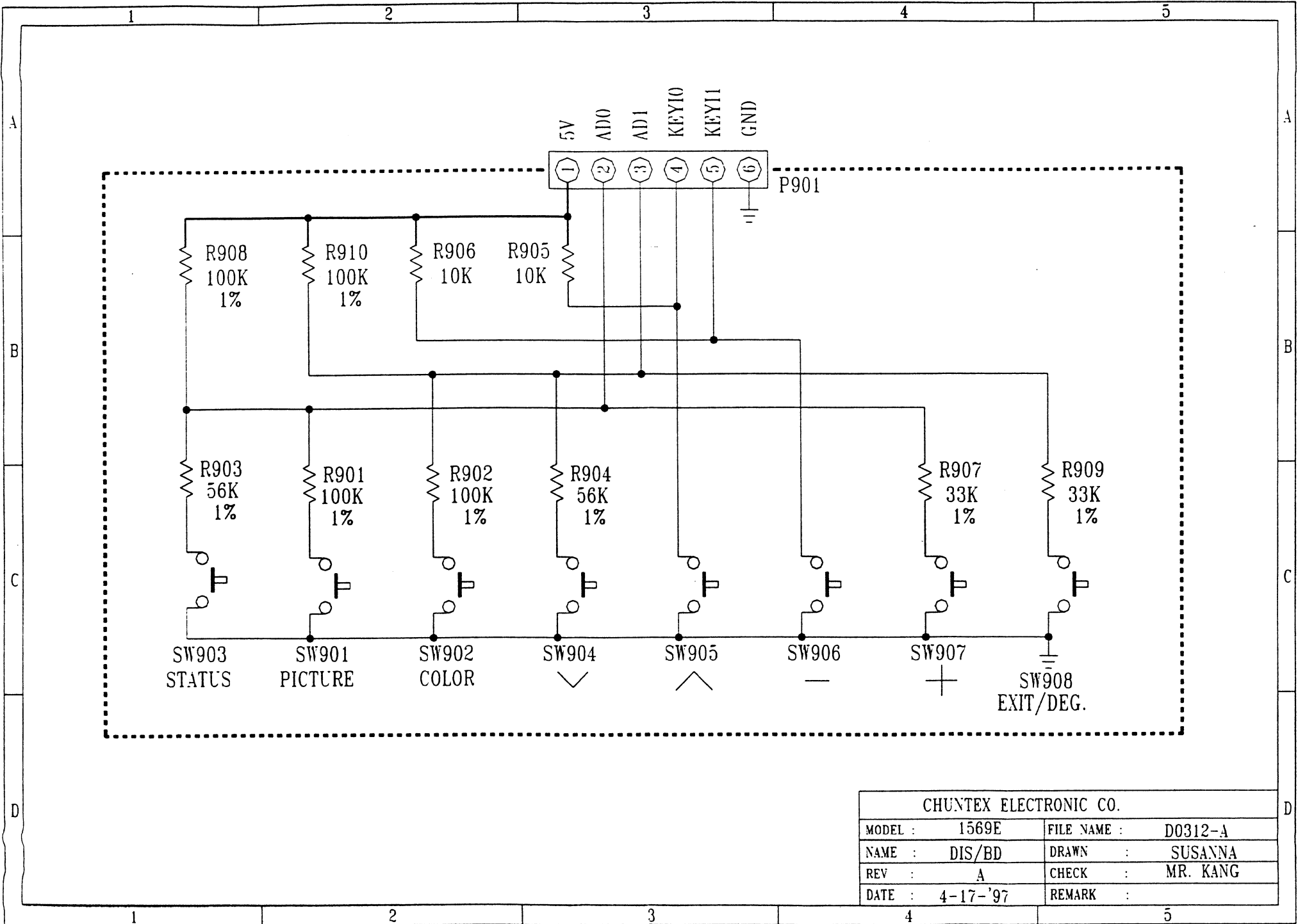


NAME		EXPLODED VIEW		MAT'L	
MODEL		1569SE1		FINISHED	
SCALE		DIM.	M/M	Q'TY	REV
DRAWN	DESIGNED	CHECKED	APPROVED		
				PARTS NO.	
				DWG NUMBER	
				MA300527	

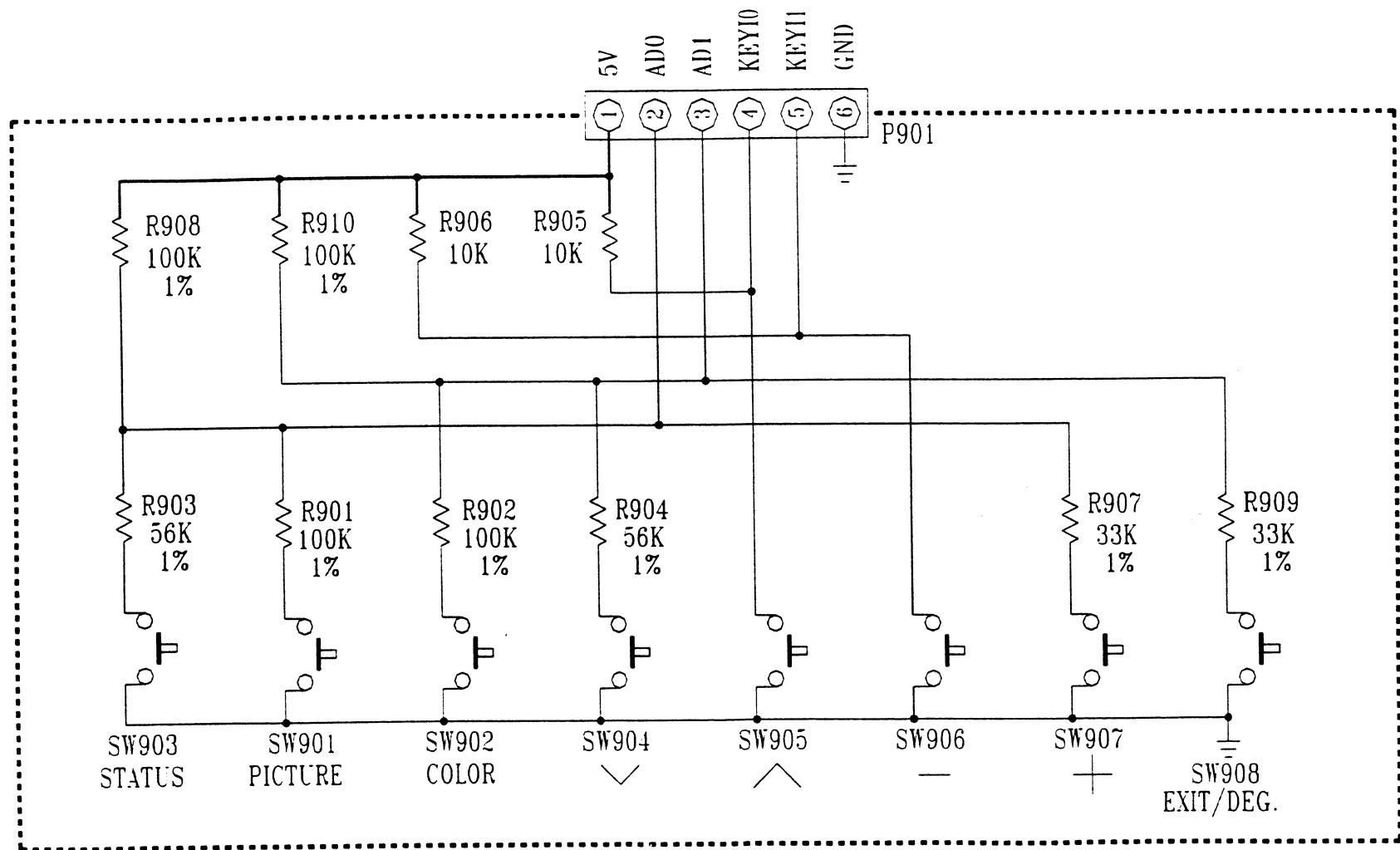
CHUNTEX ELECTRONIC CO.,LTD.



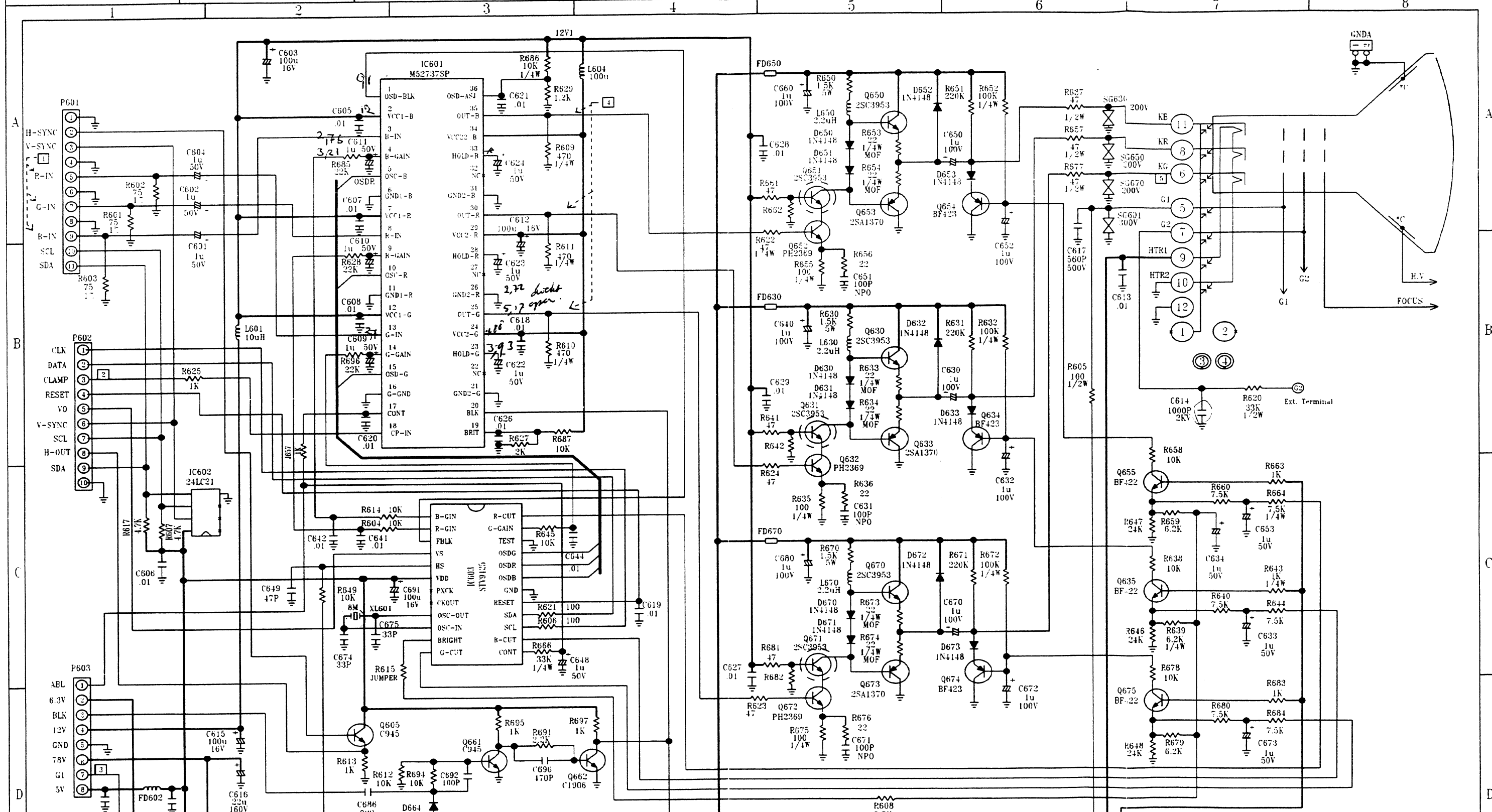
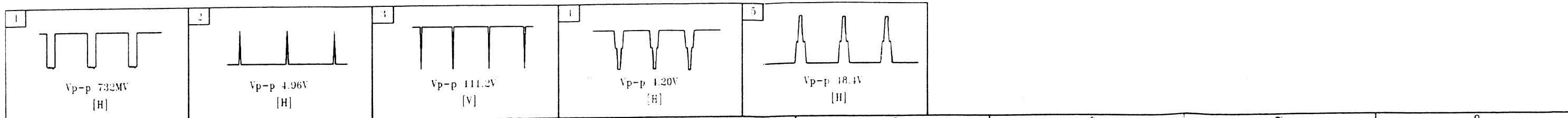




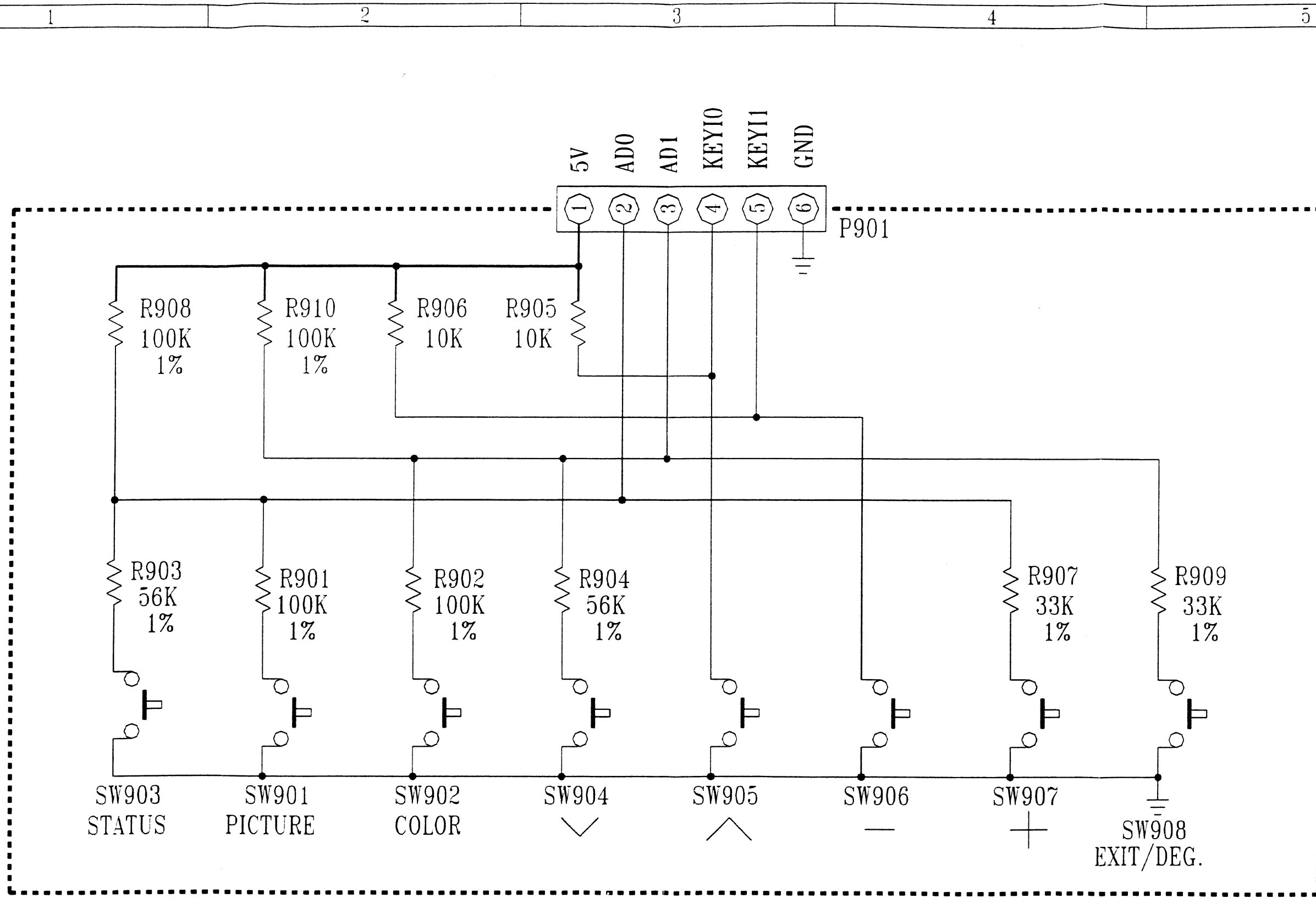
CHUNTEX ELECTRONIC CO.			
MODEL :	1569E	FILE NAME :	D0312-A
NAME :	DIS/BD	DRAWN :	SUSANNA
REV :	A	CHECK :	MR. KANG
DATE :	4-17-'97	REMARK :	



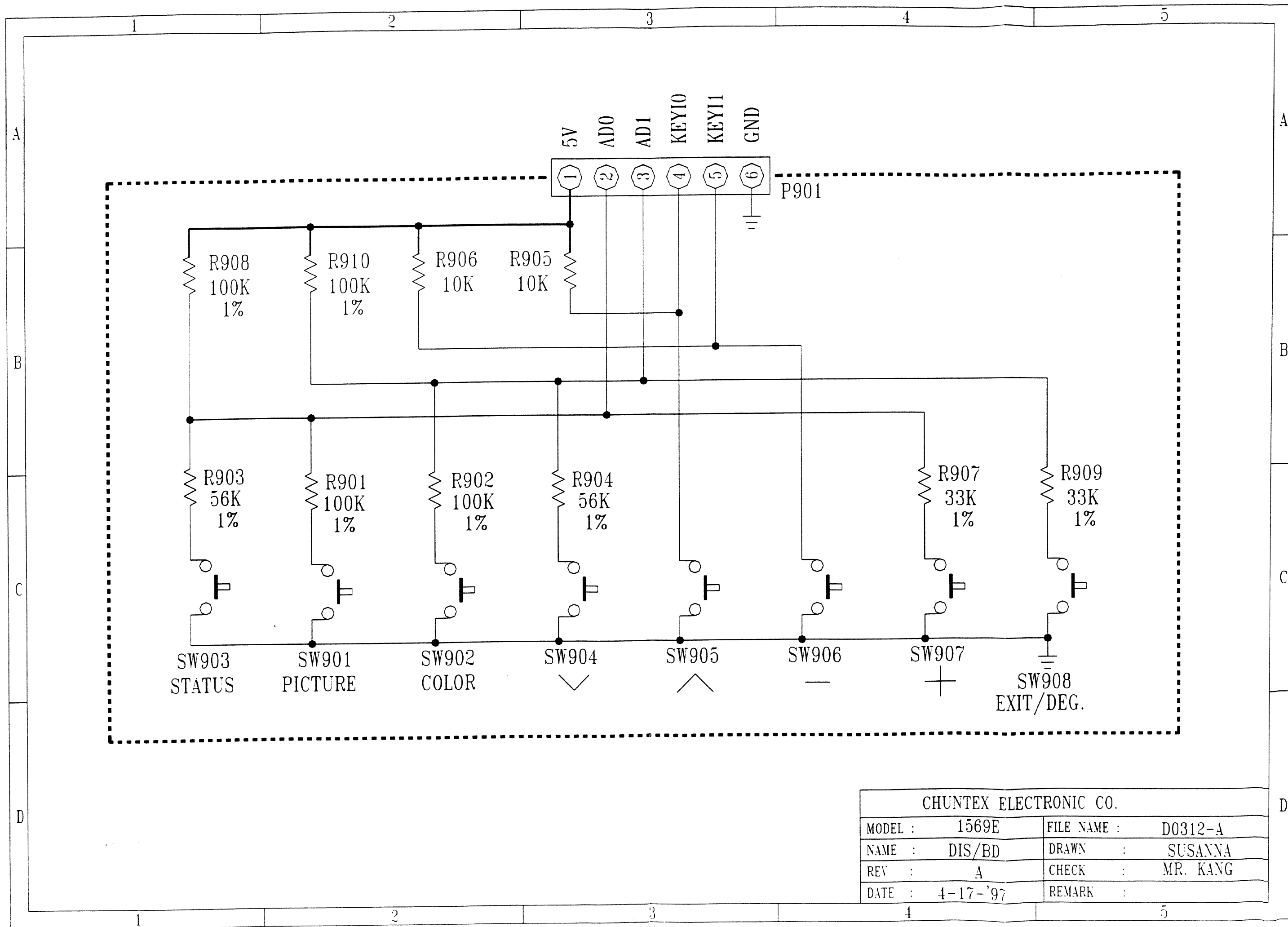
CHUNTEX ELECTRONIC CO.	
MODEL : 1569SE	FILE NAME : D038A
NAME : DIS/BD	DRAWN : SUSANYA
REV : A	CHECK : MR. KANG
DATE : 06-10-1997	REMARK :



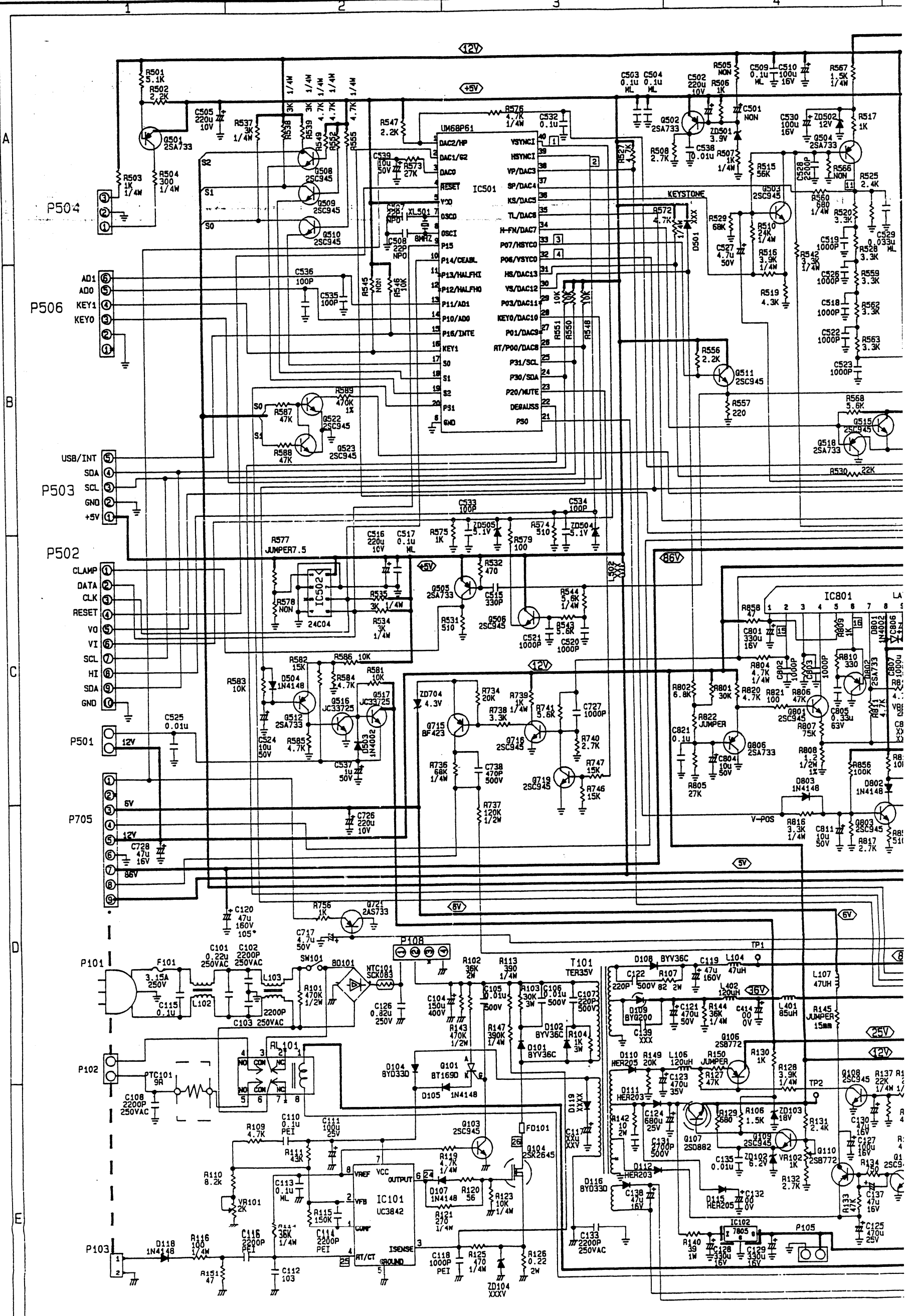
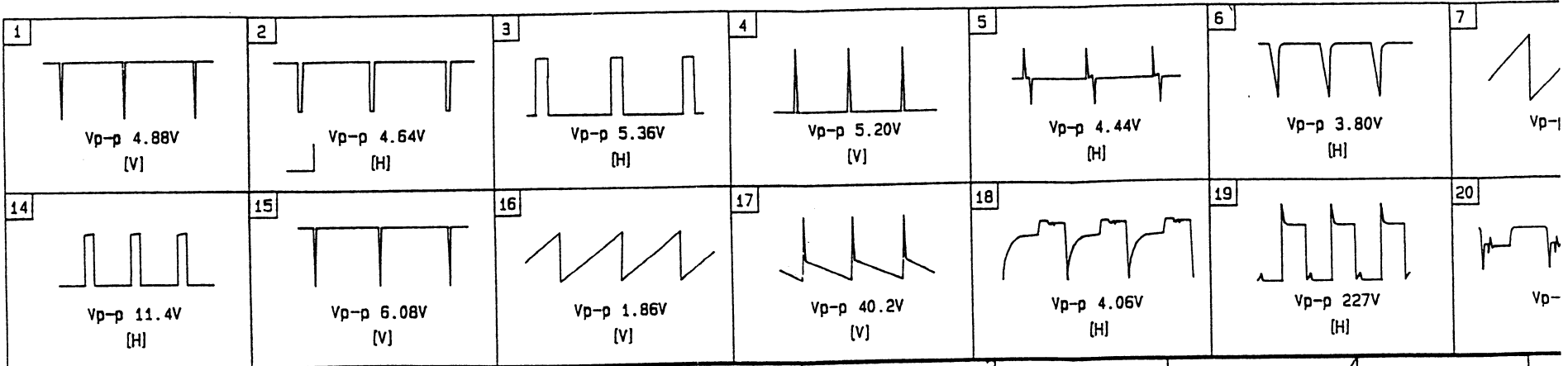
CHUNTEX ELECTRONIC CO.			
MODEL	1569E, 1569SE	PCB P/N	11833-0212A
NAME	CRT BOARD	FILE NAME	569ECA.PCB
REV	A	DRAWN	Y. J. HAN
DATE	01-11-97	CHECK	SAW

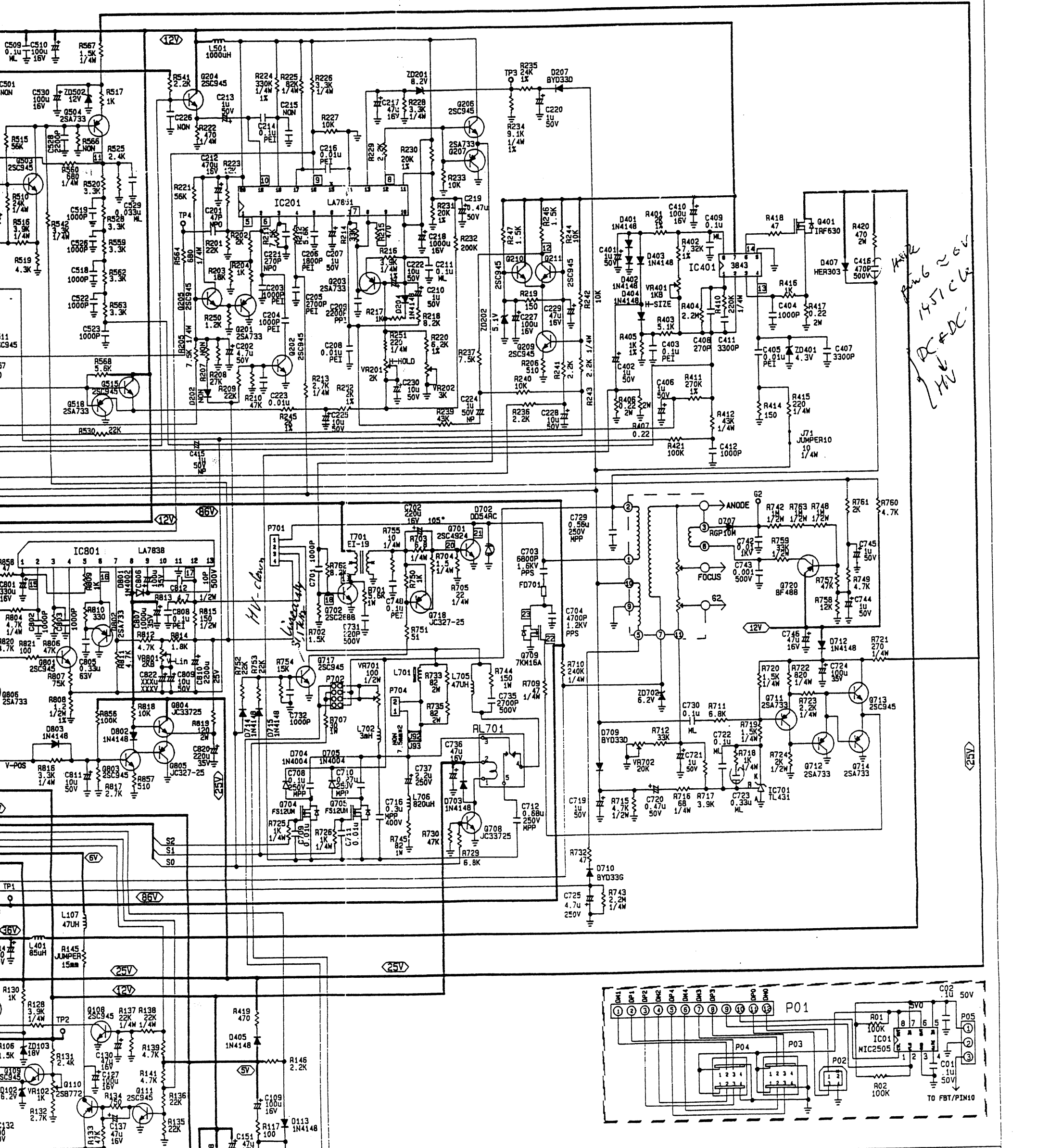
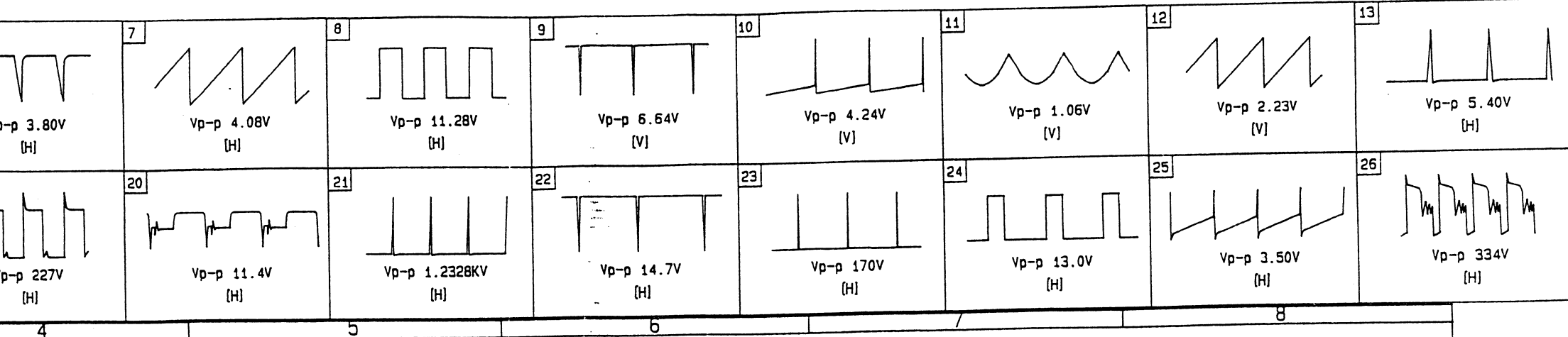


CHUNTEX ELECTRONIC CO.	
MODEL : 1569SE	FILE NAME : D038A
NAME : DIS/BD	DRAWN : SUSANNA
REV : A	CHECK : MR. KANG
DATE : 06-10-1997	REMARK :

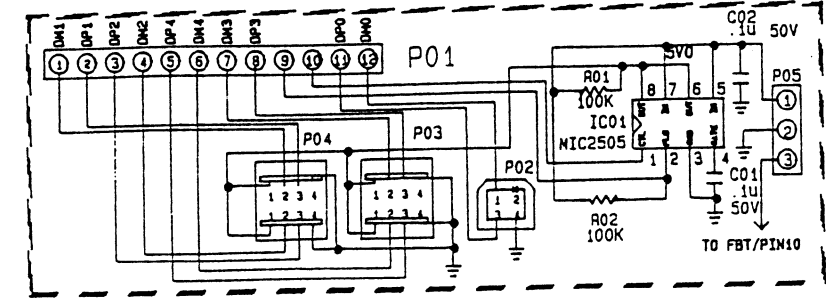


CHUNTEX ELECTRONIC CO.	
MODEL : 1569E	FILE NAME : D0312-A
NAME : DIS/BD	DRAWN : SUSANNA
REV : A	CHECK : MR. KANG
DATE : 4-17-'97	REMARK :

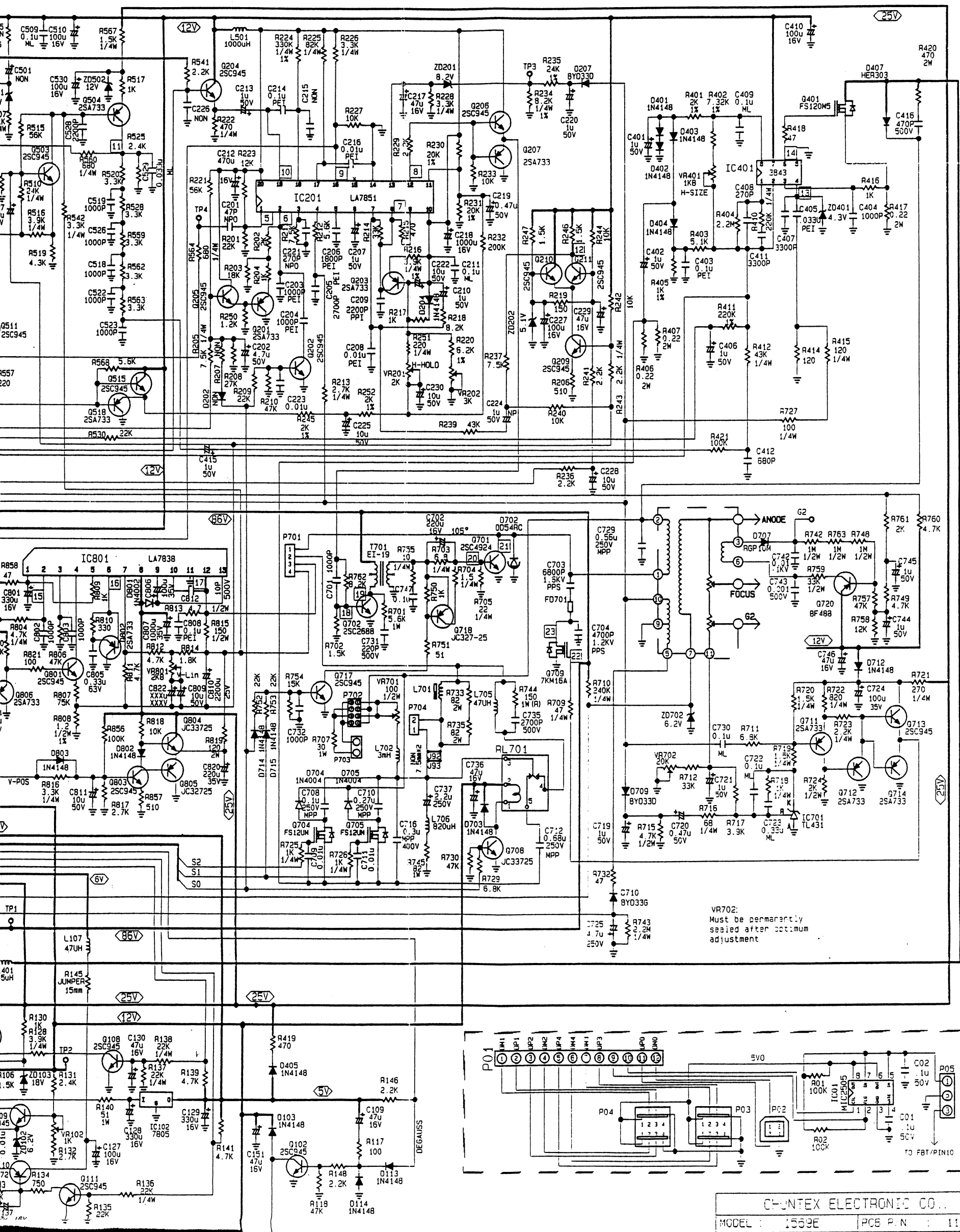
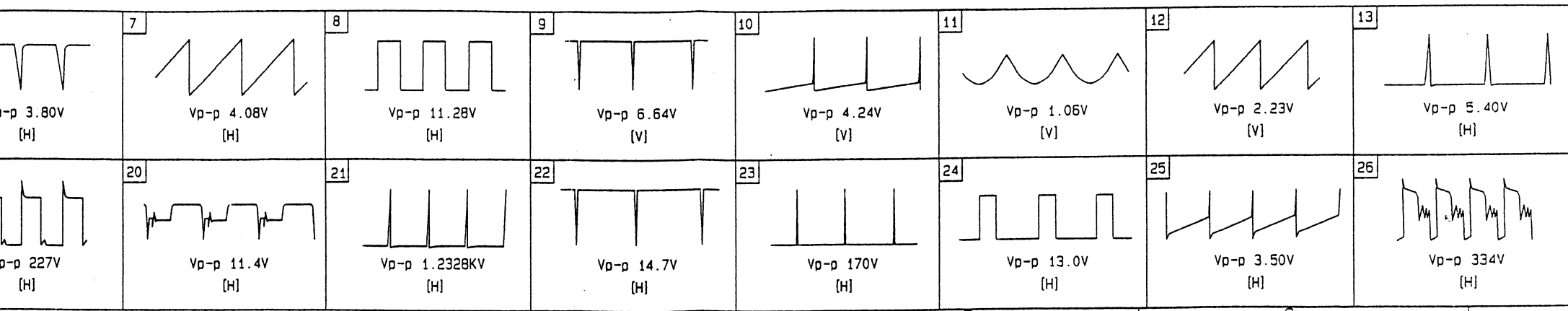




Handwritten note: *AVC ~ 6V*



CHUNTEX ELECTRONIC CO., LTD.	
MODEL : 1569SE	PCB P/N : 11S31-071A
NAME : MAIN B.D.	FILE NAME : M071AT3.SCH
REV : A	DRAWN : SUSANNA
DATE : 5-5-'97	CHECK : MR. HUANG



VR702:
Must be permanently
sealed after optimum
adjustment

CHUNTEX ELECTRONIC CO., LTD.	
MODEL : 1559E	PCB P.N. : 11981-0674
NAME : MAIN B.O.	FILE NAME : MOST-A.3CH
REV : A	DRAWN : SUSANNA
DATE : 04-14-1997	CHECK : MR. KANG